# MX852UST+/MW853UST+

## Digital Projector

## User Manual

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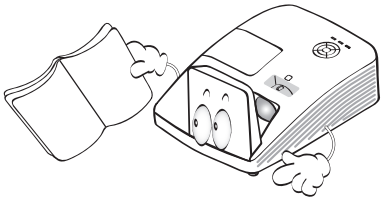
# Important safety instructions

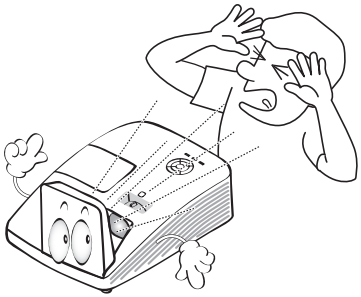
Your projector is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that you follow the instructions mentioned in this manual and marked on the product.

**Safety Instructions**

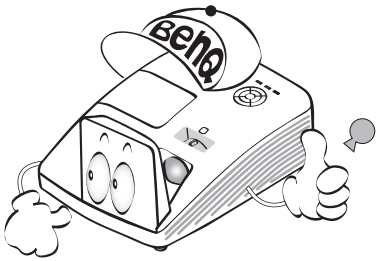
1. **Please read this manual before you operate your projector.** Save it for future reference.



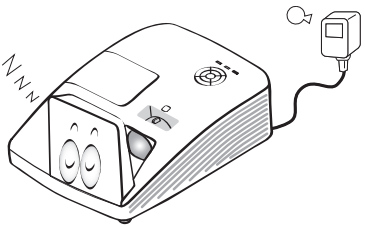
2. **Do not look straight at the projector lens during operation.** The intense light beam may damage your eyes.



3. **Refer servicing to qualified service personnel.**

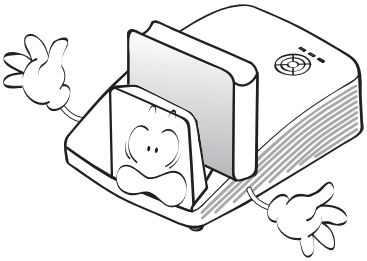



4. In some countries, the line voltage is NOT stable. This projector is designed to operate safely within a mains voltage between 100 to 240 volts AC, but could fail if power cuts or surges of ±10 volts occur. **In areas where the mains voltage may fluctuate or cut out, it is recommended that you connect your projector through a power stabilizer, surge protector or uninterruptible power supply (UPS).**

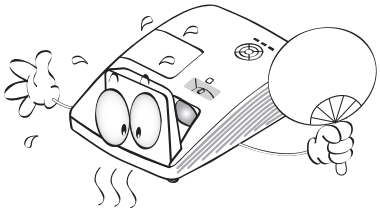


## Safety Instructions (Continued)

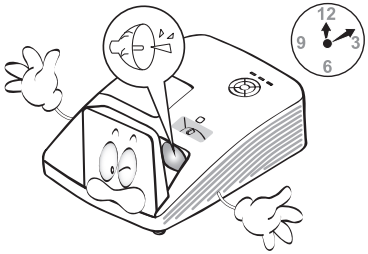
5. Do not block the projection lens with any objects when the projector is under operation as this could cause the objects to become heated and deformed or even cause a fire. To temporarily turn off the lamp, press **ECO BLANK** on the remote control.



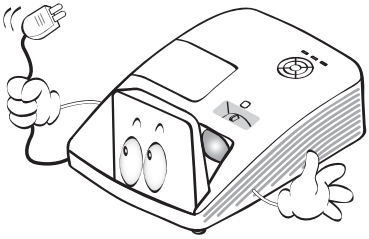
6. The lamp becomes extremely hot during operation. Allow the projector to cool for approximately 45 minutes prior to removing the lamp assembly for replacement.



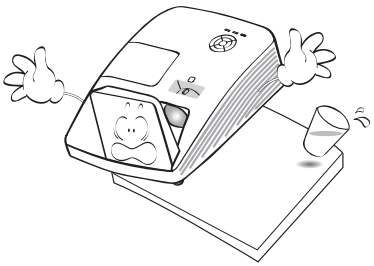
7. Do not operate lamps beyond the rated lamp life. Excessive operation of lamps beyond the rated life could cause them to break on rare occasions.




8. Never replace the lamp assembly or any electronic components unless the projector is unplugged.

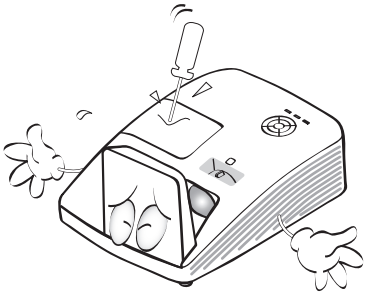


9. Do not place this product on an unstable cart, stand, or table. The product may fall, sustaining serious damage.



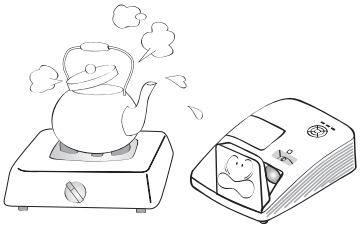
**Safety Instructions (Continued)**

10. Do not attempt to disassemble this projector. There are dangerous high voltages inside which may cause death if you should come into contact with live parts. The only user serviceable part is the lamp which has its own removable cover.
    Under no circumstances should you ever undo or remove any other covers. Refer servicing only to suitably qualified professional service personnel.



11. When the projector is under operation, you may sense some heated air and odor from its ventilation grill. It is a normal phenomenon and not a product defect.

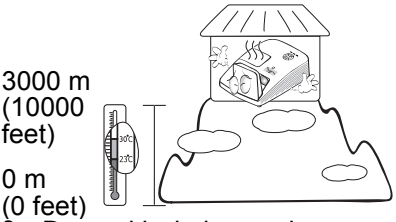
12. Do not place this projector in any of the following environments.
    - Space that is poorly ventilated or confined. Allow at least 50 cm clearance from walls and free flow of air around the projector.
    - Locations where temperatures may become excessively high, such as the inside of a car with all windows rolled up.
    - Locations where excessive humidity, dust, or cigarette smoke may contaminate optical components, shortening the projector's life span and darkening the image.



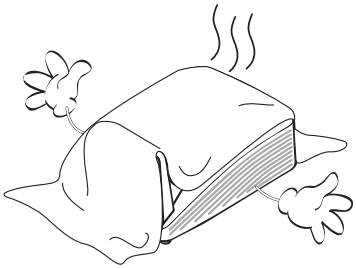
    - Locations near fire alarms

## Safety Instructions (Continued)

- Locations with an ambient temperature above 40°C / 104°F
- Locations where the altitudes are higher than 3000 m (10000 feet).

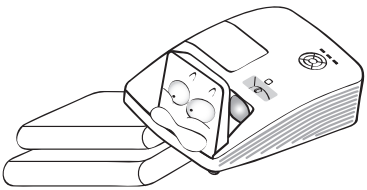



13. Do not block the ventilation holes.
    - Do not place this projector on a blanket, bedding or any other soft surface.
    - Do not cover this projector with a cloth or any other item.
    - Do not place inflammables near the projector.

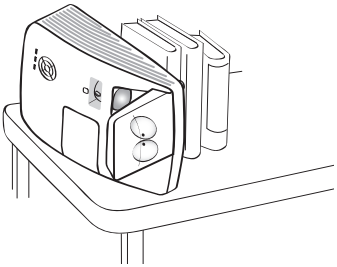


If the ventilation holes are seriously obstructed, overheating inside the projector may result in a fire.

14. Always place the projector on a level, horizontal surface during operation.
    - Do not use if tilted at an angle of more than 10 degrees left to right, nor at angle of more than 15 degrees front to back. Using the projector when it is not fully horizontal may cause a malfunction of, or damage to, the lamp.

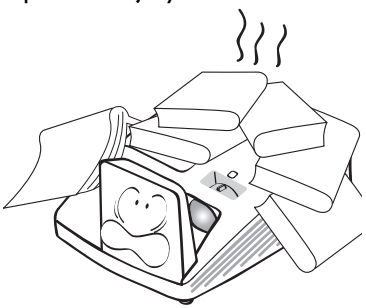


15. Do not stand the projector on end vertically. Doing so may cause the projector to fall over, causing injury or resulting in damage to the projector.

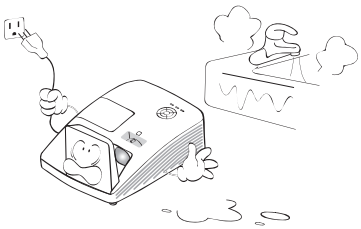


**Safety Instructions (Continued)**

16. Do not step on the projector or place any objects upon it. Besides probable physical damage to the projector, doing so may result in accidents and possible injury.

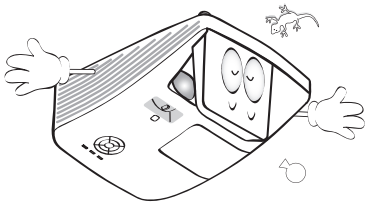


17. Do not place liquids near or on the projector. Liquids spilled into the projector may cause it to fail. If the projector does become wet, disconnect it from the power supply's wall socket and call BenQ to have the projector serviced.



18. This product is capable of displaying inverted images for wall mount installation.

⚠ Use only BenQ's Wall Mount Kit for mounting the projector and ensure it is securely installed.



## ⚠ Wall mounting the projector

We want you to have a pleasant experience using your BenQ projector, so we need to bring this safety matter to your attention to prevent possible damage to person and property. If you intend to mount your projector on the wall, we strongly recommend that you use a proper fitting BenQ projector wall mount kit and that you ensure it is securely and safely installed.

If you use a non-BenQ brand projector wall mount kit, there is a safety risk that the projector may fall from the wall due to an improper attachment through the use of the wrong gauge or length screws.

| Safety Instructions (Continued) | |
|---|---|
| You can purchase a BenQ projector wall mount kit from the place you purchased your BenQ projector. BenQ recommends that you also purchase a separate Kensington lock compatible security cable and attach it securely to both the Kensington lock slot on the projector and the base of the wall mount bracket. This will perform the secondary role of restraining the projector should its attachment to the mounting bracket become loose.<br>⚠ Hg - Lamp contains mercury. Manage in accordance with local disposal laws. See www.lamprecycle.org. | |

# Introduction

## Projector features

The projector offers the following features

- **SmartEco™ starts your dynamic power saving**
  The SmartEco™ technology offers a new way of operating the projector lamp system and saves lamp power up to 30% depending on the content brightness level.
- **Interactive capability**
  Extend the interactive function with optional PointWrite module.
- **Vertical 8% lens shift**
  Optimize the installation flexibility.
- **Filter Free**
  Filter free design to lower maintenance and operating costs.
- **Network Control**
  Integrated RJ45 connector for wired network control allowing management of projector status from a computer using a web browser. Enable Network Standby mode <6W.
- **Crestron RoomView®, and AMX supported**
  The projector supports Crestron eControl and RoomView and AMX allowing you to control and manage equipment from a remote computer via LAN connection.
- **One-key auto-adjustment**
  Pressing AUTO on the keypad or remote control to show the best picture quality immediately.
- **Built-in 10W x 2 speaker(s)**
  Built-in 10W x 2 speaker(s) providing stereo audio when an audio input is connected.
- **Quick Cooling, Auto Power Off, Direct Power On**
  **Quick Cooling** function speeds up the cooling process when turning off the projector. **Auto Power Off** function allows the projector to turn off automatically if no input signal is detected after a set period of time. and **Direct Power On** boots up the projector automatically when the power is connected.
- **Instant Restart**
  Selectable **Instant Restart** function enables you to restart the projector immediately within 90 seconds after turning it off.
- **3D Function supported**
  Various 3D formats make the 3D function more flexible. By presenting the depth of the images, you can wear BenQ 3D glasses to enjoy the 3D movies, videos and sporting events in a more realistic way.

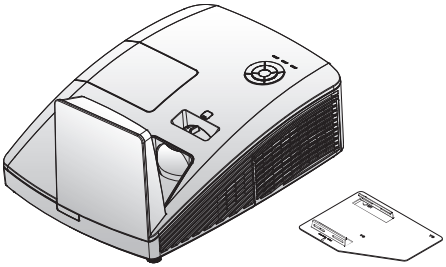
- The apparent brightness of the projected image will vary depending on the ambient lighting conditions, selected input signal contrast/brightness settings, and is directly proportional to projection distance.
- The lamp brightness will decline over time and may vary within the lamp manufacturers specifications. This is normal and expected behavior.

# Shipping contents

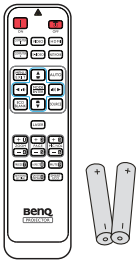
Carefully unpack and verify that you have all of the items shown below. If any of these items are missing, please contact your place of purchase.

## Standard accessories

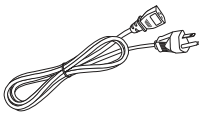
☞ The supplied accessories will be suitable for your region, and may differ from those illustrated.



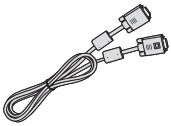
Projector with wall mount plate



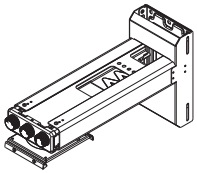
Remote control with battery**



Power cord



VGA cable



Wall mount kit

Hex key (2.5mm)

Quick start guide

User manual CD

Warranty card*

Installation chart

## Optional accessories

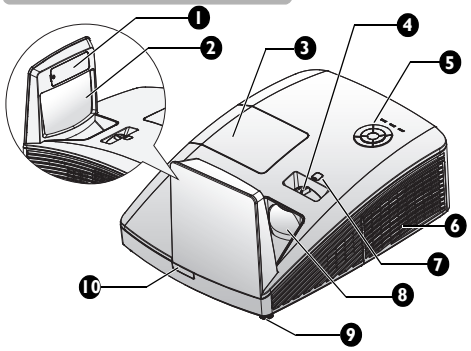
1. Spare lamp kit
2. 3D glasses
3. PointWrite kit
4. Document camera

*The warranty card is only supplied in some specific regions. Please consult your dealer for detailed information.

**There is no Laser function of the remote for Japan region.

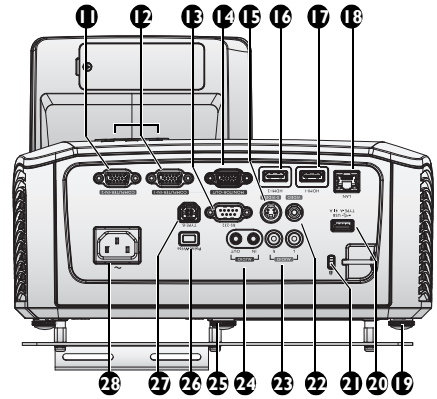
# Projector exterior view

**Front/upper side**




1. PointWrite dummy cover (Optional PointWrite kit)
2. Mirror
3. Lamp compartment cover
4. Focus ring
5. External control panel (See "Projector" on page 14 for details.)
6. Vent (cool air intake)
7. Lens shift
8. Projection lens
9. Front adjuster foot
10. Front IR remote sensor

**Rear/lower side**

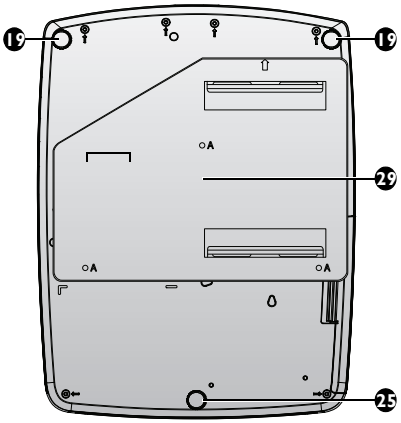



11. COMPUTRR-2 input jack
12. COMPUTER-1 input jack
13. RS-232 control port
14. RGB signal output jack
15. S-VIDEO input jack
16. HDMI-2 input jack
17. HDMI-1 input jack
18. RJ45 LAN input jack
19. Front adjuster foot
20. USB Type A port
21. Kensington anti-theft lock slot
22. VIDEO input jack
23. Audio (L/R) input jack
24. Audio input/output jack
25. Rear adjuster foot
26. PointWrite port (PointWrite kit is required)
27. USB Type B port
28. AC power cord inlet

☞ For setting the PointWrite kit on projector, Please find PointWrite manaual in the kit box you purchase.

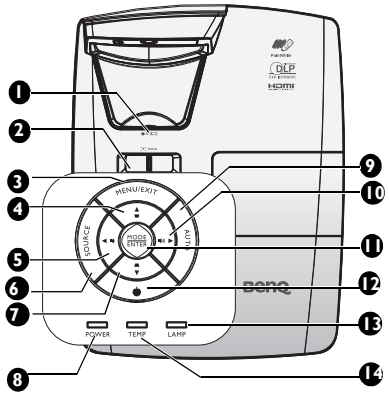
29. Wall mount plate

**Bottom side**



# Controls and functions

## Projector




1. **Lens Shift**
   Used Hex Key to adjust the lens shift function.
2. **FOCUS Ring**
   Used to adjust the projected image appearance. See "Fine-tuning the image size and clarity" on page 30 for details.
3. **MENU/EXIT**
   Turns on the On-Screen Display (OSD) menu. Goes back to previous OSD menu, exits and saves menu settings. See "Using the menus" on page 31 for details.
4. **Keystone/Arrow keys ( / ▲ Up)**
   Manually corrects distorted images resulting from an angled projection. See "Correcting keystone" on page 30 for details.
5. **◄ Left/ Decrease volume level**
   Decreases volume. See "Adjusting the sound level" on page 47 for details.
6. **SOURCE**
   Displays the source selection bar. See "Switching input signal" on page 35 for details.
7. **Keystone/Arrow keys ( / ▼ Down)**
   Manually corrects distorted images resulting from an angled projection. See "Correcting keystone" on page 30 for details.
8. **POWER indicator light**
   Lights up or flashes when the projector is under operation. See "Indicators" on page 73 for details.
9. **AUTO**
   Automatically determines the best picture timings for the displayed image. See "Auto-adjusting the image" on page 30 for details.
10. **► Right/ Increase volume level**
    Increases volume. See "Adjusting the sound level" on page 47 for details.
    When the On-Screen Display (OSD) menu is activated, the #4, #5, #7, and #10 keys are used as directional arrows to select the desired menu items and to make adjustments. See "Using the menus" on page 31 for details.

11. **MODE/ENTER**

    Selects an available picture setup mode. See "Selecting a picture mode" on page 39 for details.

    Enacts the selected On-Screen Display (OSD) menu item. See "Using the menus" on page 31 for details.

12. ⏻ **POWER**

    Toggles the projector between standby mode and on.

    See "Starting up the projector" on page 28 and "Shutting down the projector" on page 50 for details.

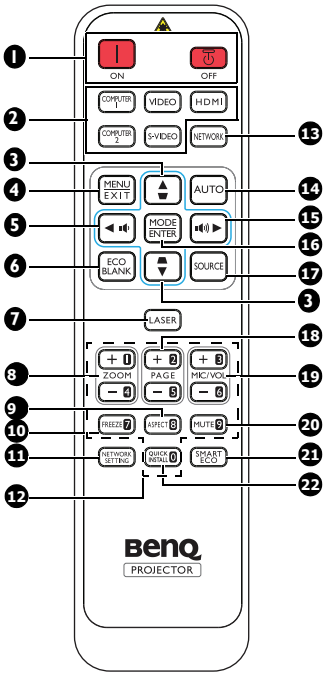
13. **LAMP indicator light**

    Indicates the status of the lamp. Lights up or flashes when the lamp has developed a problem. See "Indicators" on page 73 for details.

14. **TEMPerature indicator light**

    Lights up red if the projector's temperature becomes too high. See "Indicators" on page 73 for details.

# Remote Control

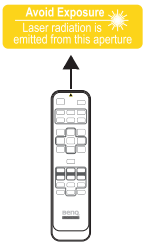



1. **ON / OFF**
   Toggles the projector between standby mode and on.
2. **Source selection buttons**
   Selects an input source for display.
3. **Keystone/Arrow keys ( / Up, / Down)**
   Manually corrects distorted images resulting from an angled projection.
4. **MENU/EXIT**
   Turns on the On-Screen Display (OSD) menu. Goes back to previous OSD menu, exits and saves menu settings.
5. **◀ Left/**
   Decreases the projector volume.
6. **ECO BLANK**
   Used to hide the screen picture.
7. **LASER** (No available in Japan region)
   Emits visible laser pointer light for presentation purposes.
8. **ZOOM+/ZOOM-**
   Magnifies or reduces the projected picture size.
9. **ASPECT**
   Selects the display aspect ratio.
10. **FREEZE**
    Freezes the projected image.
11. **NETWORK SETTING**
    Displays the **Network Settings** OSD menu.
12. **Numeric buttons**
    Enters numbers in network settings.

    Numeric buttons 1, 2, 3, 4 cannot be pressed when asked to enter password.
13. **NETWORK**
    Selects Network Display as the input signal source.
14. **AUTO**
    Automatically determines the best picture timings for the displayed image.

15. ► **Right/** 🔊
    Increases the projector volume. When the On-Screen Display (OSD) menu is activated, the #3, #5, and #15 keys are used as directional arrows to select the desired menu items and to make adjustments.
16. **MODE/ENTER**
    Selects an available picture setup mode. Activates the selected On-Screen Display (OSD) menu item.
17. **SOURCE**
    Displays the source selection bar.
18. **PAGE +/PAGE -**
    Operate your display software program (on a connected PC) which responds to page up/down commands (like Microsoft PowerPoint).
19. **MIC/VOL +/MIC/VOL -**
    The function is not available on this projector.
20. **MUTE**
    Toggles projector audio between on and off.
21. **SMART ECO**
    Switch the lamp mode between Eco/Normal and SmartEco.
22. **QUICK INSTALL** (**"TEST"** is for Japan region)
    Displays the **Quick Install** OSD menu.

## Operating the LASER pointer




The Laser Pointer is a presentation aid for professionals. It emits a beam of red light when you press it.

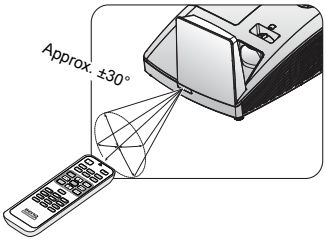
The laser beam is visible. It is necessary to press and hold LASER for continuous output.

⚠ Do not look into the laser light window or shine the laser light beam on yourself or others. See the warning messages on the back of the remote control prior to using it.

The laser pointer is not a toy. Parents should be mindful of the dangers of laser energy and keep this remote control out of the reach of children.

# Remote control effective range

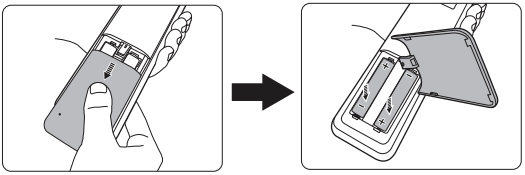
Infra-Red (IR) remote control sensor is located on the front of the projector. The remote control must be held at an angle within 30 degrees perpendicular to the projector's IR remote control sensor to function correctly. The distance between the remote control and the sensor should not exceed 8 meters (~ 26 feet).




Make sure that there are no obstacles between the remote control and the IR sensor on the projector that might obstruct the infra-red beam.

## Replacing the remote control battery

1. To open the battery cover, turn the remote control over to view its back, push on the finger grip on the cover and slide it up in the direction of the arrow as illustrated. The cover will slide off.
2. Remove any existing batteries (if necessary) and install two AAA batteries observing the battery polarities as indicated in the base of the battery compartment. Positive (+) goes to positive and negative (-) goes to negative.
3. Refit the cover by aligning it with the base and sliding it back down into position. Stop when it clicks into place.



⚠
- Avoid excessive heat and humidity.
- There may be battery damage if the battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the battery manufacturer.
- Dispose of the used battery according to the battery manufacturer's instructions.
- Never throw a battery into a fire. There may be danger of an explosion.
- If the battery is dead or if you will not be using the remote control for a long time, remove the battery to prevent damage to the remote control from possible battery leakage.

# Positioning your projector

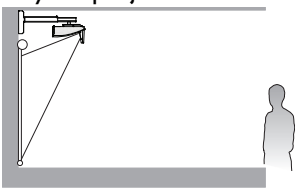
## Choosing a location

Your projector is designed to be installed in one of four possible installation locations:

**1. Front Wall**

Select this location with the projector suspended upside-down from the wall in front of the screen.

Purchase the BenQ Projector Wall Mounting Kit from your dealer to mount your projector on the wall.

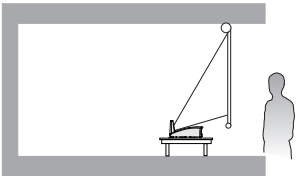


**2. Rear Table**

Select this location with the projector placed on a table behind the screen.

Note that a special rear projection screen is required.

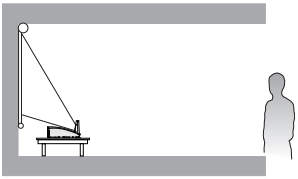
*Set **Rear Table** in the **SYSTEM SETUP: Basic** > **Projector Installation** menu after you turn the projector on.



**3. Front Table**

Select this location with the projector placed on a table in front of the screen. This is the most common way to position the projector for quick setup and portability.

*Set **Front Table** in the **SYSTEM SETUP: Basic** > **Projector Installation** menu after you turn the projector on.

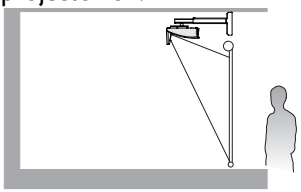


**4. Rear Wall**

Select this location with the projector suspended upside-down from the wall behind the screen.

Note that a special rear projection screen and the BenQ Projector Wall Mounting Kit are required for this installation location.

*Set **Rear Wall** in the **SYSTEM SETUP: Basic** > **Projector Installation** menu after you turn the projector on.



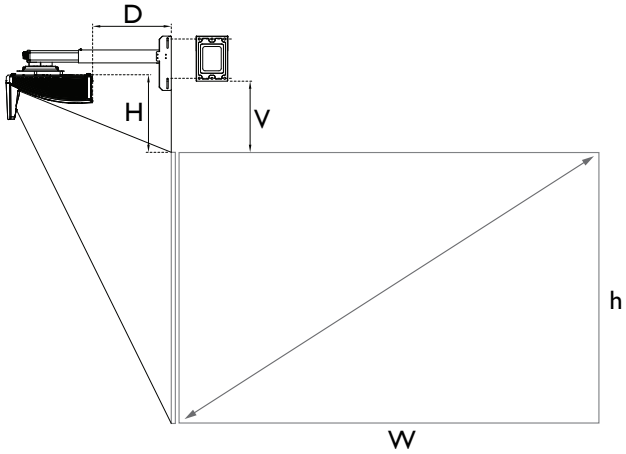
Your room layout or personal preference will dictate which installation location you select. Take into consideration the size and position of your screen, the location of a suitable power outlet, as well as the location and distance between the projector and the rest of your equipment.

# Obtaining a preferred projected image size

1. Wall mount
2. Dimension (include projector and wall mount)

## Projection dimensions

Refer to "Dimensions" on page 24 for the center of lens dimensions of this projector before calculating the appropriate position.




### MX852UST+

The screen aspect ratio is 4:3 and the projected picture is 4:3.

| XGA | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (Diagonal) | | Screen width (W) | | Screen Height (h) | | Projection distance (D) | | Offset (H) | | Scale parameter | Distance between Wall plate & projection screen (V) |
| inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | mm | |
| 68 | 1727 | 54 | 1382 | 40 | 1036 | 11.16 | 283.4 | 11.86 | 301.3 | 500 | 273.5 |
| 70 | 1778 | 55 | 1422 | 42 | 1067 | 11.91 | 302.4 | 12.15 | 308.5 | 515 | 280.7 |
| 75 | 1905 | 59 | 1524 | 45 | 1143 | 13.83 | 351.4 | 12.88 | 327.2 | 560 | 299.4 |
| 77 | 1956 | 61 | 1565 | 46 | 1173 | 14.62 | 371.4 | 13.18 | 334.8 | 585 | 307 |
| 80 | 2032 | 63 | 1626 | 48 | 1219 | 15.72 | 399.4 | 13.60 | 345.4 | 615 | 317.6 |
| 82 | 2083 | 65 | 1666 | 49 | 1250 | 16.51 | 419.4 | 13.90 | 353 | 635 | 325.2 |
| 85 | 2159 | 67 | 1727 | 51 | 1295 | 17.61 | 447.4 | 14.32 | 363.7 | 665 | 335.9 |

## MW853UST+

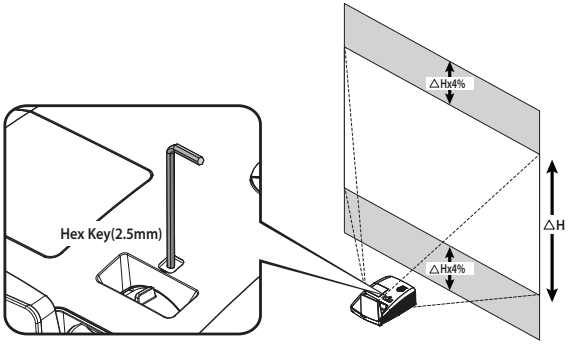
The screen aspect ratio is 16:10 and the projected picture is 16:10.

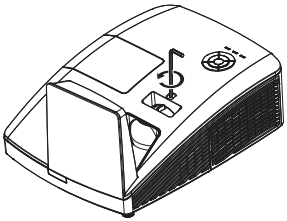
| WXGA | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (Diagonal) | | Screen width (W) | | Screen Height (h) | | Projection distance (D) | | Offset (H) | | Scale parameter | Distance between Wall plate & projection screen (V) |
| inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | mm | |
| 80 | 2032 | 67 | 1723 | 42 | 1077 | 11.11 | 282.3 | 11.81 | 300 | 495 | 274.7 |
| 85 | 2159 | 71 | 1831 | 45 | 1144 | 12.73 | 323.3 | 12.37 | 314.3 | 535 | 289 |
| 87 | 2210 | 73 | 1874 | 46 | 1171 | 13.40 | 340.3 | 12.61 | 320.2 | 555 | 294.9 |
| 90 | 2286 | 76 | 1939 | 47 | 1212 | 14.38 | 365.3 | 12.95 | 328.9 | 580 | 303.6 |
| 92 | 2337 | 77 | 1982 | 48 | 1239 | 15.01 | 381.3 | 13.17 | 334.4 | 600 | 309.1 |
| 95 | 2413 | 80 | 2046 | 50 | 1279 | 15.98 | 405.8 | 13.50 | 343 | 625 | 317.7 |
| 97 | 2464 | 81 | 2089 | 51 | 1306 | 16.65 | 422.8 | 13.74 | 348.9 | 645 | 323.6 |
| 100 | 2540 | 85 | 2154 | 53 | 1346 | 17.55 | 445.8 | 14.05 | 356.9 | 665 | 331.6 |

☞ There is 5% tolerance among these numbers due to optical component variations. BenQ recommends that if you intend to permanently install the projector, you should physically test the projection size and distance using the actual projector before you permanently install it, so as to make allowance for this projector's optical characteristics. This will help you determine the exact mounting position so that it best suits your installation location.

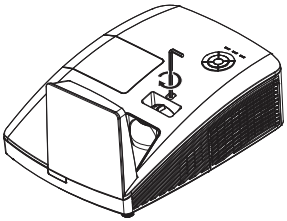
☞ It is recommended to adjust focus 15 minutes after powering on due to the slight shifting of the lens from temperature changing.

# Limited lens shift specification



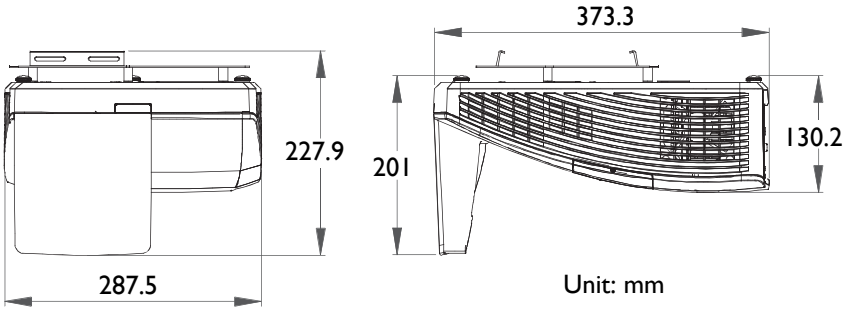
To shift up the projection image, twist the adjuster counter clockwisre.



To shift down the projection image, twist the adjuster clockwisre.

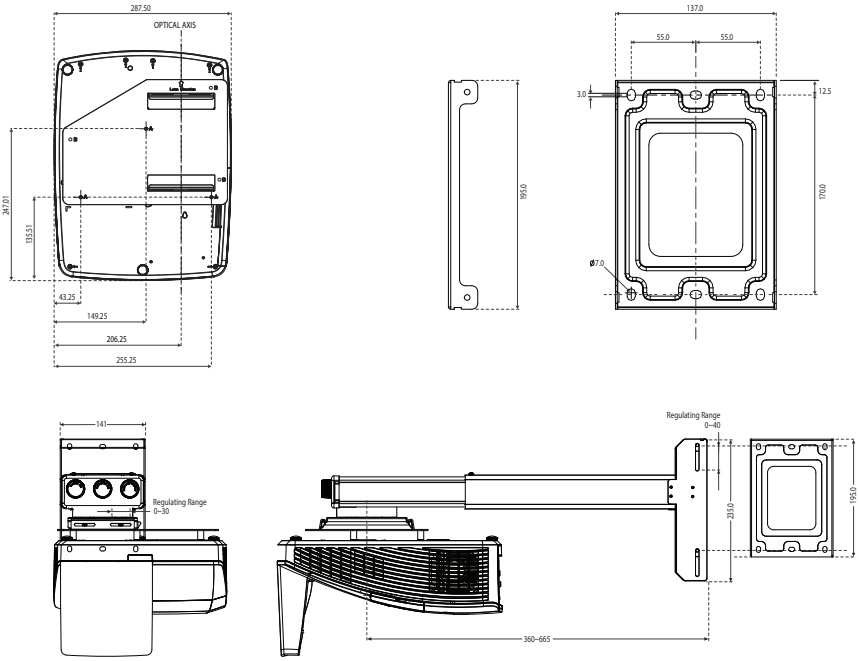
# Dimensions

287.5 mm (W) x 201 mm (H) x 373.3 mm (D)




Unit: mm

Wall Mount Installation

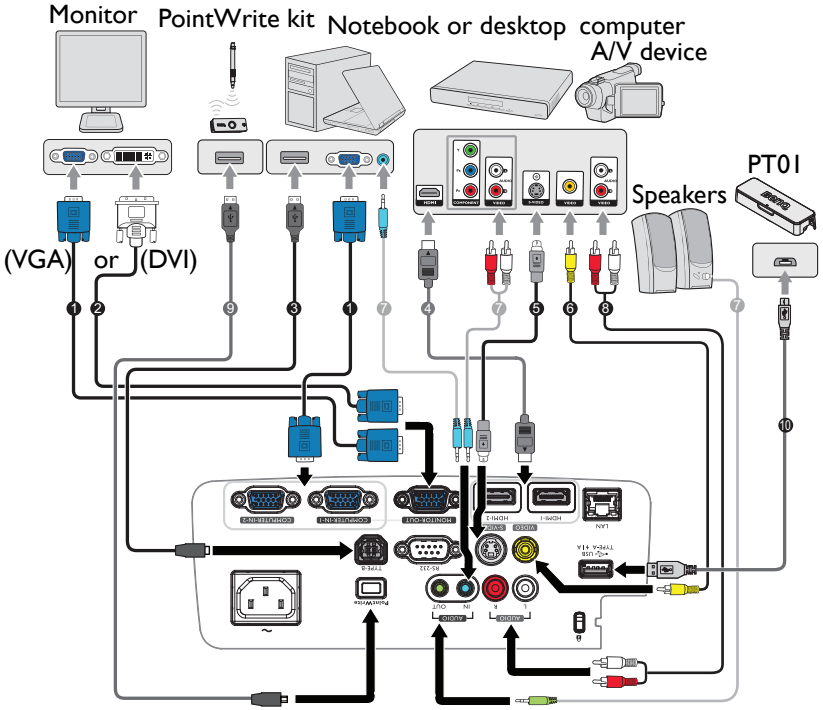


# Connection

When connecting a signal source to the projector, be sure to:

1. Turn all equipment off before making any connections.
2. Use the correct signal cables for each source.
3. Ensure the cables are firmly inserted.

In the connections shown below, some cables may not be included with the projector (see "Shipping contents" on page 11). They are commercially available from electronics stores.




1. VGA cable
2. VGA to DVI-A cable
3. USB cable (B to A type)
4. HDMI cable
5. S-Video cable
6. Video cable
7. Audio cable
8. Audio L/R cable
9. USB cable (mini B to A type)
10. USB cable (A to mini B type) connect to Laser Module PT01

☞ Many notebooks do not turn on their external video ports when connected to a projector. Usually a key combo like FN + F3 or CRT/LCD key turns the external display on/off. Locate a function key labeled CRT/LCD or a function key with a monitor symbol on the notebook. Press FN and the labeled function key simultaneously. Refer to your notebook's documentation to find your notebook's key combination.

# Connecting video source devices

You need only connect the projector to a video source device using just one of the connecting methods, however each provides a different level of video quality. The method you choose will most likely depend upon the availability of matching terminals on both the projector and the video source device as described below:

| Terminal name | Terminal appearance | Picture quality |
|---|---|---|
| HDMI | | Best |
| Component Video | | Better |
| S-Video | | Good |
| Video | | Normal |

# Connecting audio

The projector has one built-in mono speaker which are designed to provide basic audio functionality accompanying data presentations for business purposes only. They are not designed for, nor intended for stereo audio reproduction use as might be expected in home theater or home cinema applications. Any stereo audio input (if provided), is mixed into a common mono audio output through the projector speaker.

The built-in speaker will be muted when the **AUDIO OUT** jack is connected.

- The projector is only capable of playing mixed mono audio, even if a stereo audio input is connected. See "Connecting audio" on page 26 for details.
- If the selected video image is not displayed after the projector is turned on and the correct video source has been selected, check that the video source device is turned on and operating correctly. Also check that the signal cables have been connected correctly.

# Playing sound through the projector

You can make use of the projector (mixed mono) speaker in your presentations, and also connect separate amplified speakers to the AUDIO OUT socket of the projector.

If you have a separate sound system, you will most likely want to connect the audio output of your Video source device to that sound system, instead of to the mono audio projector.

Once connected, the audio can be controlled by the projector On-Screen Display (OSD) menus.

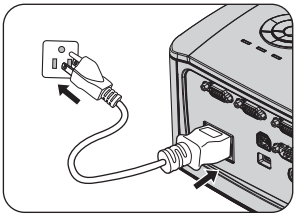
The table below describes the connection methods for different devices, and where the sound is from.

| Device | Computer/PC | Component/ S Video/Video | HDMI |
|---|---|---|---|
| Audio input port | AUDIO IN (mini jack) | AUDIO (L/R) | HDMI |
| The projector can play the sound from... | AUDIO IN (mini jack) | AUDIO (L/R) | HDMI |
| Audio output port | AUDIO OUT | AUDIO OUT | AUDIO OUT |
| The selected input signal determines which sound will be played by the projector speaker, and which sound will be output from the projector when AUDIO OUT is connected. If you select the COMPUTER/PC signal, the projector can play the sound received from AUDIO IN mini jack. If you select the COMPONENT/VIDEO signal, the projector can play the sound received from AUDIO (L/R). | | | |

# Operation

## Starting up the projector

1. Plug the power cord into the projector and into a wall socket. Turn on the wall socket switch (where fitted). Check that the **POWER indicator light** on the projector lights orange after power has been applied.



⚠ Please use the original accessories (e.g. power cable) only with the device to avoid possible dangers such as electric shock and fire.

2. Press **POWER** on the projector or remote control to start the projector and a start up tone sounds. The **POWER indicator light** flashes green and stays green when the projector is on.

   The start up procedure takes about 30 seconds. In the later stage of start up, a startup logo is projected.

   (If necessary) Rotate the focus ring to adjust the image clearness.

To turn off the ring tone, see "Turning off the Power on/off ring tone" on page 48 for details.

☞ If the projector is still hot from previous activity, it will run the cooling fan for approximately 90 seconds before energizing the lamp.

3. To use the OSD menus, please set them to your familiar language first.
4. If you are prompted for a password, press the arrow keys to enter a five digit password. See "Utilizing the password function" on page 32 for details.

5. Switch all of the connected equipment on.
6. The projector will start to search for input signals. The current input signal being scanned displays in the upper left corner of the screen. If the projector doesn't detect a valid signal, the message '**No Signal**' will continue displaying until an input signal is found.

   You can also press **SOURCE** on the projector or remote control to select your desired input signal. See "Switching input signal" on page 35 for details.

☞ If the frequency/resolution of the input signal exceeds the projector's operating range, you will see the message '**Out of Range**' displayed on a blank screen. Please change to an input signal which is compatible with the

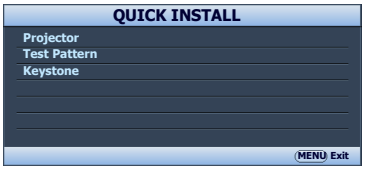
projector's resolution or set the input signal to a lower setting. See "Timing chart" on page 77 for details.

⚠ To maintain the lamp life, once you turn the projector on, wait at least 5 minutes before turning if off.

# Using the quick install

The projector provides a hot key to set **Projector Installation**, **Test Pattern**, and **Keystone** quickly.

Press **Quick Install** on the remote control and press ▲/▼ to select:




- Projector Installation: See "Positioning your projector" on page 20.
- Test Pattern: See "Using the test pattern" on page 48.
- Keystone: See "Correcting keystone" on page 30.

# Adjusting the projected image

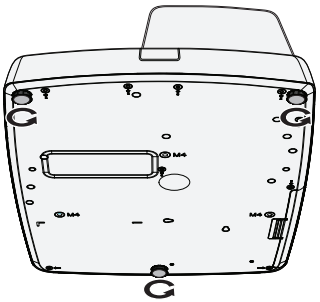
## Adjusting the projection angle

The projector is equipped with 3 adjuster feet. These adjusters change the image height and projection angle. To adjust the projector:

Screw adjuster foot to fine tune the horizontal angle.

To retract the foot, hold up the projector then slowly lower the projector. Screw the adjuster foot in a reverse direction.

If the projector is not placed on a flat surface or the screen and the projector are not perpendicular to each other, the projected image becomes trapezoidal. To correct this situation, see "Correcting keystone" on page 30 for details.



⚠
- Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyes.
- Be careful when you press the adjuster button as it is close to the exhaust vent where hot air comes from.

# Auto-adjusting the image

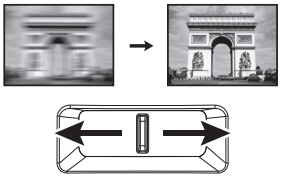
In some cases, you may need to optimize the picture quality. To do this, press **AUTO** on the projector or remote control. Within 3 seconds, the built-in Intelligent Auto Adjustment function will re-adjust the values of Frequency and Clock to provide the best picture quality.

The current source information will be displayed in the upper left corner of the screen for 3 seconds.

- The screen will be blank while **AUTO** is functioning.
- This function is only available when PC signal (analog RGB) is selected.

# Fine-tuning the image size and clarity

Sharpen the image by rotating the FOCUS ring.



# Correcting keystone

Keystoning refers to the situation where the projected image is noticeably wider at either the top or bottom. It occurs when the projector is not perpendicular to the screen.

To correct this, besides adjusting the height of the projector, you can use **Auto Keystone** or **Keystone** manually correct it following one of these steps.

- Using the remote control

Press ▼/▲ on the projector or remote control to display the Keystone correction page. Press ▲ to correct keystoning at the top of the image. Press ▼ to correct keystoning at the bottom of the image.

Press ▼/▼. Press ▲/▲.

- Using the OSD menu

1. Press **MENU/EXIT** and then press ◄/► until the **Display** menu is highlighted.
2. Press ▼ to highlight **Keystone** and press **MODE/ENTER**. The **Keystone** correction page displays.
3. Press ▲ to correct keystoning at the top of the image or press ▼ to correct keystoning at the bottom of the image.

# Using the menus

The projector is equipped with On-Screen Display (OSD) menus for making various adjustments and settings.

Below is the overview of the OSD menu.

To use the OSD menus, please set them to your familiar language first.

1. Press **MODE/ENTER** on the projector or remote control to turn the OSD menu on.

2. Use ◄/► to highlight the **System Setup: Basic** menu.

3. Press ▼ to highlight **Language** and press ◄/► to select a preferred language**.**

4. Press **MODE/ENTER** twice* on the projector or remote control to leave and save the settings.

***The first press leads you back to the main menu and the second press closes the OSD menu.**

# Securing the projector

## Using a security cable lock

The projector has to be installed in a safe place to prevent theft. Otherwise, purchase a lock, such as a Kensington lock, to secure the projector. You can locate a Kensington lock slot on the left side of the projector. See "Kensington anti-theft lock slot" on page 12 for details.

A Kensington security cable lock is usually a combination of key(s) and a lock. Refer to the lock's documentation for finding out how to use it.

# Utilizing the password function

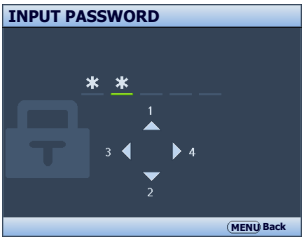
For security purposes and to help prevent unauthorized use, the projector includes an option for setting up password security. The password can be set through the On-Screen Display (OSD) menu.

⚠ WARNING: You will be inconvenienced if you activate the power-on lock functionality and subsequently forget the password. Print out this manual (if necessary) and write the password you used in this manual, and keep the manual in a safe place for later recall.

## Setting a password

☞ Once a password has been set, the projector cannot be used unless the correct password is entered every time the projector is started.

1. Open the OSD menu and go to the **System Setup: Advanced** > **Security Settings** menu. Press **MODE/ENTER**. The **Security Settings** page displays.
2. Highlight **Change Security Settings** and press **MODE/ENTER**.
3. As pictured to the right, the four arrow keys (▲, ▼, ◄, ►) respectively represent 4 digits (1, 2, 3, 4). According to the password you desire to set, press the arrow keys to enter five digits for the password.




4. Confirm the new password by re-entering the new password.
   Once the password is set, the OSD menu returns to the **Security Settings** page.
5. To activate the **Power on Lock** function, press ▲/▼ to highlight **Power on Lock** and press ◄/► to select **On**.
6. To activate the **Web Control Lock** function, press ▲/▼ to highlight **Web Control Lock** and press ◄/► to select **On**.
   When the **Web Control Lock** is activated, you have to enter the

correct password to change projector settings via the Projector Network Display System

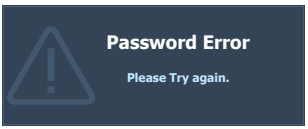
☞ The digits being input will display as asterisks on-screen. Write your selected password down here in this manual in advance or right after the password is entered so that it is available to you should you ever forget it.

**Password:** _ _ _ _ _

Keep this manual in a safe place.

7. To leave the OSD menu, press **MENU/EXIT.**

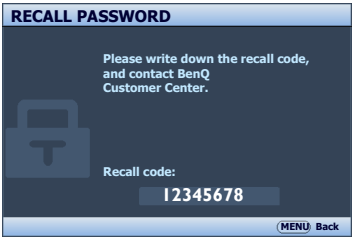
# If you forget the password




If the password function is activated, you will be asked to enter the five-digit password every time you turn on the projector. If you enter the wrong password, the password error message as pictured to the right displays lasting for three seconds, and the message **'INPUT PASSWORD'** follows. You can retry by entering another five-digit password, or if you did not record the password in this manual, and you absolutely do not remember it, you can use the password recall procedure. See "Entering the password recall procedure" on page 33 for details.

If you enter an incorrect password 5 times in succession, the projector will automatically shut down in a short time.

# Entering the password recall procedure




1. Press and hold **AUTO** on the projector or remote control for 3 seconds. The projector will display a coded number on the screen.
2. Write down the number and turn off your projector.
3. Seek help from the local BenQ service center to decode the number. You may be required to provide proof of purchase documentation to verify that you are an authorized user of the projector.

# Changing the password

1. Open the OSD menu and go to the **System Setup: Advanced** > **Security Settings** > **Change password** menu.
2. Press **MODE/ENTER**. The message **'INPUT CURRENT PASSWORD'** displays.
3. Enter the old password.
   - If the password is correct, another message **'INPUT NEW PASSWORD'** displays.
   - If the password is incorrect, the password error message displays lasting for three seconds, and the message **'INPUT CURRENT PASSWORD'** displays for your retry. You can press **MENU/EXIT** to cancel the change or try another password.
4. Enter a new password.

☞ The digits being input will display as asterisks on-screen. Write your selected password down here in this manual in advance or right after the password is entered so that it is available to you should you ever forget it.

**Password:** _ _ _ _ _

Keep this manual in a safe place.

5. Confirm the new password by re-entering the new password.
6. You have successfully assigned a new password to the projector. Remember to enter the new password next time the projector is started.

7. To leave the OSD menu, press **MENU/EXIT.**

# Disabling the password function

To disable password protection, go back to the **System Setup: Advanced** > **Security Settings > Change Security Settings** menu after opening the OSD menu system. Press **MODE/ENTER**. The message "**INPUT PASSWORD**" appears. Enter the current password.

1. If the password is correct, the OSD menu returns to the **Security Settings**. Press ▼ highlight **Power On Lock** and press ◄/► to select **Off**. You will not have to enter the password next time you turn on the projector.
   Press ▼ to highlight **Web Control Lock** and press ◄/► to select **Off**. The **Web Control Lock** function is released and the projector settings can be change via the Projector Network System.
2. If the password is incorrect, the password error message displays lasting for three seconds, and the message **'INPUT PASSWORD'** displays

for your retry. You can press **MENU/EXIT** to cancel the change or try another password.

☞ Though the password function is disabled, you need to keep the old password in hand should you ever need to re-activate the password function by entering the old password.

# Switching input signal

The projector can be connected to multiple devices at the same time. However, it can only display one full screen at a time.

Be sure the **Quick Auto Search** function in the **Source** menu is **On** (which is the default of this projector) if you want the projector to automatically search for the signals.

You can also manually cycle through the available input signals.

1. Press **SOURCE** on the projector or press input source directly from the remote control. A source selection bar displays.
2. Press ▲/▼ until your desired signal is selected and press **MODE/ ENTER**.

   Once detected, the selected source information will display on the screen for seconds. If there is multiple equipment connected to the projector, repeat steps 1-2 to search for another signal.

☞
- The brightness level of the projected image will change accordingly when you switch between different input signals. Data (graphic) "PC" presentations using mostly static images are generally brighter than "Video" using mostly moving images (movies).
- For best display picture results, you should select and use an input signal which outputs at this resolution. Any other resolutions will be scaled by the projector depending upon the 'aspect ratio' setting, which may cause some image distortion or loss of picture clarity. See "Selecting the aspect ratio" on page 36 for details.

# Changing Color Space

In the unlikely event that you connect the projector to a DVD player via the projector's **HDMI** input and the projected picture displays wrong colors, please change the color space.

To do this:

1. Press **MENU/EXIT** and then press ◄/► until the **SOURCE** menu is highlighted.
2. Press ▼ to highlight **Color Space Conversion** and press ◄/► to select the setting.

☞ This function is only available when the HDMI input socket is in use.

# Magnifying and searching for details

If you need to find the details on the projected picture, magnify the picture. Use the direction arrow keys for navigating the picture.

- Using the remote control

1. Press **Digital Zoom+/-** to display the Zoom bar. Press **Digital Zoom+** to magnify the center of the picture. Press the key repeatedly until the picture size is suitable for your need.
2. Use the directional arrows (▲, ▼, ◄, ►) on the projector or remote control to navigate the picture.
3. To restore the picture to its original size, press **AUTO**. You can also press **Digital Zoom-**. When the key is pressed again, the picture is further reduced until it is restored to the original size.

- Using the OSD menu

1. Press **MENU/EXIT** and then press ◄/► until the **Display** menu is highlighted.
2. Press ▼ to highlight **Digital Zoom** and press **MODE/ENTER**. The Zoom bar displays.
3. Press ▼ on the projector repeatedly to magnify the picture to a desired size.
4. To navigate the picture, press **MODE/ENTER** to switch to the paning mode and press the directional arrows (▲, ▼, ◄, ►) to navigate the picture.
5. To reduce size of the picture, press **MODE/ENTER** to switch back to the zoom in/out functionality, and press **AUTO** to restore the picture to its original size. You can also press ▼ repeatedly until it is restored to the original size.

☞ The picture can only be navigated after the picture is magnified. You can further magnify the picture while searching for details.

# Selecting the aspect ratio

The 'aspect ratio' is the ratio of the image width to the image height. Most analog TV and computers are in 4:3 ratio, and digital TV and DVDs are usually in 16:9 ratio.

With the advent of digital signal processing, digital display devices like this projector can dynamically stretch and scale the image output to a different aspect than that of the image input signal.

To change the projected image ratio (no matter what aspect the source is):

- Using the remote control

1. Press **Aspect** to show the current setting.
2. Press **Aspect** repeatedly to select an aspect ratio to suit the format of the video signal and your display requirements.

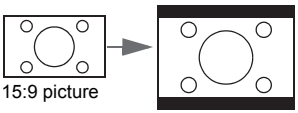
- Using the OSD menu

1. Press **MENU/EXIT** and then press ◄/► until the **Display** menu is highlighted.
2. Press ▼ to highlight **Aspect Ratio**.
3. Press ◄/► to select an aspect ratio to suit the format of the video signal and your display requirements.

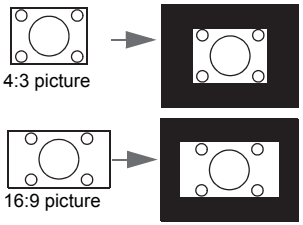
# About the aspect ratio

☞ In the pictures below, the black portions are inactive areas and the white portions are active areas. OSD menus can be displayed on those unused black areas.

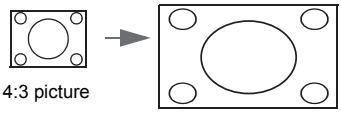
1. **Auto**: Scales an image proportionally to fit the projector's native resolution in its horizontal width. This is suitable for the incoming image which is neither in 4:3 nor 16:9 and you want to make most use of the screen without altering the image's aspect ratio.



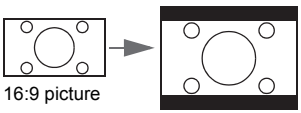

2. **Real**: The image is projected as its original resolution, and resized to fit within the display area. For input signals with lower resolutions, the projected image will display smaller than if resized to full screen. You could move the projector away from the screen to increase the image size if necessary. You may also need to refocus the projector after making these adjustments.



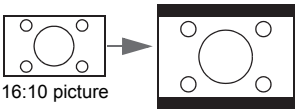

3. **4:3**: Scales an image so that it is displayed in the center of the screen with a 4:3 aspect ratio. This is most suitable for 4:3 images like computer monitors, standard definition TV and 4:3 images aspect DVD movies, as it displays them without aspect alteration.




4. **16:9**: Scales an image so that it is displayed in the center of the screen with a 16:9 aspect ratio. This is most suitable for images which are already in a 16:9 aspect, like high definition TV, as it displays them without aspect alteration.




5. **16:10:** Scales an image so that it is displayed in the center of the screen with a 16:10 aspect ratio. This is most suitable for images which are already in a 16:10 aspect, as it displays them without aspect alteration.



# Optimizing the image

## Using Wall Color

In the situation where you are projecting onto a colored surface such as a painted wall which may not be white, the **Wall Color** feature can help correct the projected picture's color to prevent possible color difference between the source and projected pictures.

To use this function, go to the **Display** > **Wall Color** menu and press ◄/► to select a color which is the closest to the color of the projection surface. There are several precalibrated colors to choose from: **Light Yellow**, **Pink**, **Light Green**, **Blue**, and **Blackboard**.

## Selecting a picture mode

The projector is preset with several predefined picture modes so that you can choose one to suit your operating environment and input signal picture type.

To select an operation mode that suits your need, you can follow one of the following steps.

- Press **MODE/ENTER** on the projector repeatedly until your desired mode is selected.
- Go to the **Picture > Picture Mode** menu and press ◄/► to select a desired mode.

1. **Dynamic mode**: Maximizes the brightness of the projected image. This mode is suitable for environments where extra-high brightness is required, such as using the projector in well lit rooms.
2. **Presentation mode**: Is designed for presentation. The brightness is emphasized in this mode to match PC and notebook coloring..
3. **sRGB mode**: Maximizes the purity of RGB colors to provide true-to-life images regardless of brightness setting. It is most suitable for viewing photos taken with an sRGB compatible and properly calibrated camera, and for viewing PC graphic and drawing applications such as AutoCAD.
4. **Cinema mode**: Is appropriate for playing colorful movies, video clips from digital cameras or DVs through the PC input for best viewing in a blackened (dimly lit) environment.
5. **3D mode**: Is appropriate for playing 3D images and 3D video clips.
6. **User 1/User 2 mode**: Recalls the settings customized based on the current available picture modes. See "Setting the User 1/User 2 mode" on page 40 for details.

### Setting the User 1/User 2 mode

There are two user-definable modes if the current available picture modes are not suitable for your need. You can use one of the picture modes (except the **User 1**/**User 2**) as a starting point and customize the settings.

1. Press **MENU/EXIT** to open the On-Screen Display (OSD) menu.
2. Go to the **Picture** > **Picture Mode** menu.
3. Press ◄/► to select **User 1** to **User 2**.
4. Press ▼ to highlight **Reference Mode**.

☞ This function is only available when **User 1** or **User 2** mode is selected up in the **Picture Mode** sub-menu item.

5. Press ◄/► to select a picture mode that is closest to your need.
6. Press ▼ to select a sub-menu item to be changed and adjust the value with ◄/►. See "Fine-tuning the image quality in user modes" below for details.

## Fine-tuning the image quality in user modes

According to the detected signal type, and selected picture mode, some of the functions listed below may not be available. Base on your need, you can make adjustments to these functions by highlighting them and press ◄/► on the projector or remote control.

### Adjusting Brightness

The higher the value, the brighter the image. And lower the setting, darker the image. Adjust this control so the black areas of the image appear just as black and that detail in the dark areas is visible.

### Adjusting Contrast

The higher the value, the greater the contrast. Use this to set the peak white level after you have previously adjusted the **Brightness** setting to suit your selected input and viewing environment.

### Adjusting Color

Lower setting produces less saturated colors. If the setting is too high, colors on the image will be overpowering, which makes the image unrealistic.

### Adjusting Tint

The higher the value, the more reddish the picture becomes. The lower the value, the more greenish the picture becomes.

### Adjusting Sharpness

The higher the value, the sharper the picture becomes. The lower the value, the softer the picture becomes.

## Adjusting Brilliant Color

This feature utilizes a new color-processing algorithm and system level enhancements to enable higher brightness while providing truer, more vibrant colors in picture. It enables a greater than 50% brightness increase in mid-tone images, which are common in video and natural scenes, so the projector reproduces images in realistic and true colors. If you prefer images with that quality, select **On**. If you don't need it, select **Off**.

When **Off** is selected, the **Color Temperature** function is not available.

## Selecting a Color Temperature

The options available for color temperature* settings vary according to the signal type selected.

1. **Cooler:** makes the image appear bluish white.
2. **Normal:** Maintains normal colorings for white.
3. **Warm:** Makes images appear reddish white.

***About color temperatures:**

There are many different shades that are considered to be "white" for various purposes. One of the common methods of representing white color is known as the "color temperature". A white color with a low color temperature appears to be reddish white. A white color with a high color temperature appears to have more blue in it.

## Setting a preferred color temperature

To set a preferred color temperature:

1. Highlight **Color Temperature** and select **Warm**, **Normal** or **Cool** by pressing ◄/► on the projector or remote control.
2. Press ▼ to highlight **Color Temperature Fine Tuning** and press **MODE/ENTER**. The Color Temperature Fine Tuning page appears.
3. Press ▲/▼ to highlight the item you want to change and adjust the values by pressing ◄/►.
   - **R Gain/G Gain/B Gain**: Adjusts the contrast levels of Red, Green, and Blue.
   - **R Offset/G Offset/B Offset**: Adjusts the brightness levels of Red, Green, and Blue.
4. Press **MENU/EXIT** to exit and save the settings

## 3D Color Management

In most installation situations, color management will not be necessary, such as in classroom, meeting room, or lounge room situations where lights remain on, or where building external windows allow daylight into the room.

Only in permanent installations with controlled lighting levels such as boardrooms, lecture theaters, or home theaters, should color management be considered. Color management provides fine color control adjustment to allow for more accurate color reproduction, should you require it.

Proper color management can only be achieved under controlled and reproducible viewing conditions. You will need to use a colorimeter (color light meter), and provide a set of suitable source images to measure color reproduction. These tools are not provided with the projector, however, your projector supplier should be able to provide you with suitable guidance, or even an experienced professional installer.

The Color Management provides six sets (RGBCMY) of colors to be adjusted. When you select each color, you can independently adjust its range and saturation according to your preference.

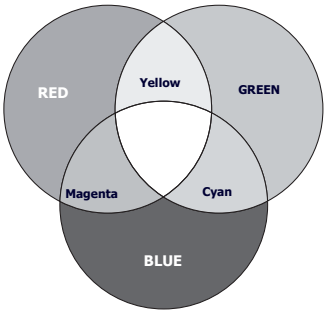
If you have purchased a test disc which contains various color test patterns and can be used to test the color presentation on monitors, TVs, projectors, etc. You can project any image from the disc on the screen and enter the **3D Color Management** menu to make adjustments.

To adjust the settings:

1. Go to the **Picture** menu and highlight **3D Color Management**.
2. Press **MODE/ENTER** and the **3D Color Management** page displays.
3. Highlight **Primary color** and press ◄/► to select a color from among Red, Green, Blue, Cyan, Magenta and Yellow.
4. Press ▼ to highlight **Hue** and press ◄/► to select its range. Increase in the range will include colors consisted of more proportions of its two adjacent colors.

   Please refer to the illustration to the right for how the colors relate to each other.

   For example, if you select Red and set its range at 0, only pure red in the projected picture will be selected. Increasing its range will include red close to yellow and red close to magenta.




5. Press ▼ to highlight **Saturation** and adjust its values to your preference by pressing ◄/►. Every adjustment made will reflect to the image immediately.

For example, if you select Red and set its value at 0, only the saturation of pure red will be affected.

☞ **Saturation** is the amount of that color in a video picture. Lower settings produce less saturated colors; a setting of "0" removes that color from the image entirely. If the saturation is too high, that color will be overpowering and unrealistic.

6. Press ▼ to highlight **Gain** and adjust its values to your preference by pressing ◄/►. The contrast level of the primary color you select will be affected. Every adjustment made will reflect to the image immediately.
7. Repeat steps 3 to 6 for other color adjustments.
8. Make sure you have made all of the desired adjustments.
9. Press **MENU/EXIT** to exit and save the settings.

### Resetting current or all picture modes

1. Go to the **Picture** menu and highlight **Reset Picture Settings**.
2. Press **MODE/ENTER** and press ▲/▼ to select **Current** or **All**.
   - **Current**: returns current picture mode to the factory preset settings.
   - **All**: returns all settings, except **User 1**/**User 2** in the **Picture** menu to the factory preset settings.

## Setting the presentation timer

Presentation timer can indicate the presentation time on the screen to help you achieve better time management when giving presentations. Follow these steps to utilize this function:

1. Go to the **System Setup: Basic > Presentation Timer** menu and press **MODE/ENTER** to display the **Presentation Timer** page.
2. Highlight **Timer Period** and decide the time period by pressing ◄/►. The length of time can be set from 1 to 5 minutes in 1-minute increments and 5 to 240 minutes in 5-minute increments.

☞ If the timer is already on, the timer will restart whenever the Timer Period is reset.

3. Press ▼ to highlight **Timer Display** and choose if you want the timer to show up on the screen by pressing ◄/►.

| Selection | Description |
|---|---|
| **Always** | Displays the timer on screen throughout the presentation time. |
| **3 min/2 min/1 min** | Displays the timer on screen in the last 3/2/1 minute(s). |
| **Never** | Hides the timer throughout the presentation time. |

4. Press ▼ to highlight **Timer Position** and set the timer position by pressing ◄/►.
5. Press ▼ to highlight **Timer Counting Direction** and select your desired counting direction by pressing ◄/►.

| Selection | Description |
|---|---|
| **Count Up** | Increases from 0 to the preset time. |
| **Count Down** | Decreases from the preset time to 0. |

6. Press ▼ to highlight **Sound Reminder** and decide if you want to activate sound reminder by pressing ◄/►. If you select **On**, a double beep sound will be heard at the last 30 seconds of counting down/up, and a triple beep sound will be produced when the timer is up.
7. To activate the presentation timer, press ▼ and press ◄/► to highlight **On** and press **MODE/ENTER**.
8. A confirmation message appears. Highlight **Yes** and press **MODE/ENTER** on the projector or remote control to confirm. You will see the message "**Timer is On**" appearing on the screen. The timer starts counting when the timer is on.

## To cancel the timer, perform the following steps:

1. Go to the **System Setup: Basic > Presentation Timer** menu and highlight **Off**. Press **MODE/ENTER**. A confirmation message appears.
2. Highlight **Yes** and press **MODE/ENTER** to confirm. You will see the message "**Timer is Off**" appearing on the screen.

# Remote paging operations

Connect the projector to your PC or notebook with a USB cable prior to using the paging function. See "Connection" on page 25 for details.

You can operate your display software program (on a connected PC) which responds to page up/down commands (like Microsoft PowerPoint) by pressing **PAGE +/PAGE -** on the remote control.

If remote paging function doesn't work, check if the USB connection is correctly made and the mouse driver on your computer is updated to the latest version.

☞ The remote paging function cannot work with Microsoft® Windows® 98 operating system. Windows® XP or higher operating systems are recommended.

# Freezing the image

Press **FREEZE** on the remote control to freeze the image. The word '**FREEZE**' will appear on the screen. To release the function, press any key on the projector or remote control.

☞ If your remote control has the following keys, please note that they cannot be pressed to release the function: **LASER**, **#2**, **#5**, **PAGE +/PAGE -**.

Even if an image is frozen on the screen, the pictures are running on the video or other device. If the connected devices have active audio output, you will still hear the audio even though the image is frozen on screen.

# Hiding the image

In order to draw the audience's full attention to the presenter, you can use E**CO BLANK** on the remote control to hide the screen image. When the function is activated with an audio input connected, the audio can still heard.

You can set the blank time in the **System Setup: Basic > Operating Settings > Blank Timer** menu to let the projector return the image automatically after a period of time when there is no action taken on the blank screen. The length of time can be set from 5 to 30 minutes in 5-minute increments.

If the preset time spans are not suitable for your presentation, select **Disable**.

No matter **Blank Timer** is activated or disabled, you can press most of the keys on the projector or remote control to restore the picture.

⚠ • Do not block the projection lens from projecting as this could cause the blocking object to become heated and deformed or even cause a fire.

# Locking control keys

With the control keys on the projector locked, you can prevent your projector settings from being changed accidentally (by children, for example). When the **Panel Key Lock** is on, no control keys on the projector will operate except ⏻ **POWER**.

1. Go to the **System Setup: Basic > Panel Key Lock** menu, and select **On** by pressing ◄/► on the projector or remote control. A confirmation message appears.
2. Highlight **Yes** and press **MODE/ENTER** to confirm.

To release panel key lock, use the remote control to enter the **System Setup: Basic > Panel Key Lock** menu and press ◄/► to select **Off**.

- Keys on the remote control are still active when panel key lock is enabled.
- If you press ⏻ **POWER** to turn off the projector without disabling panel key lock, the projector will still be in locked status the next time it is turned on.

# Operating in a high altitude environment

We recommend you use the **High Altitude Mode** when your environment is between
1500 m –3000 m above sea level, and temperature is between 0°C–30°C.

⚠ Do not use the **High Altitude Mode** if your altitude is between 0 m and 1500 m and temperature is between 0°C and 35°C. The projector will be over cooled, if you turn the mode on under such a condition.

To activate the **High Altitude Mode**:

1. Press **MENU/EXIT** and then press ◄/► until the **System Setup: Advanced** menu is highlighted.
2. Press ▼ to highlight **High Altitude Mode** and press ◄/► to select **On**. A confirmation message displays.
3. Highlight **Yes** and press **MODE/ENTER**.

Operation under "**High Altitude Mode**" may cause a higher decibel operating noise level because of increased fan speed necessary to improve overall system cooling and performance.

If you use this projector under other extreme conditions excluding the above, it may display auto shut-down symptoms, which is designed to protect your projector from over-heating. In cases like this, you should switch to High Altitude mode to solve these symptoms. However, this is not to state that this projector can operate under any and all harsh or extreme conditions.

# Adjusting the sound

The sound adjustments made as below will have an effect on the projector speakers. Be sure you have made a correct connection to the projector audio input. See "Connection" on page 25 for how the audio input is connected.

| INPUT SOURCE | AUDIO IN | AUDIO OUT |
|---|---|---|
| Computer | mini jack | mini jack |
| HDMI | HDMI | mini jack |
| VIDEO | RCA | mini jack |
| S-VIDEO | RCA | mini jack |

## Muting the sound

To temporarily turn off the sound,

- Using the remote control

Press **MUTE** to temporarily turn off the sound. While the sound is off, the screen will display in the upper right corner of the screen.

To restore the sound, press **MUTE** again.

- Using the OSD menu

1. Press **MENU/EXIT** and then press ◄/► until the **System Setup: Advanced** menu is highlighted.
2. Press ▼ to highlight **Audio Settings** and press **MODE/ENTER**. The **Audio Settings** page displays.
3. Highlight **Mute** and press ◄/► to select **On**.
4. To restore the sound, repeat steps 1-3 and press ◄/► to select **Off**.

## Adjusting the sound level

To adjust the sound level,

- Using the remote control

Press or to select a desired sound level.

- Using the OSD menu

1. Repeat steps 1-2 above.
2. Press ▼ to highlight **Volume** and press ◄/► to select a desired sound level.

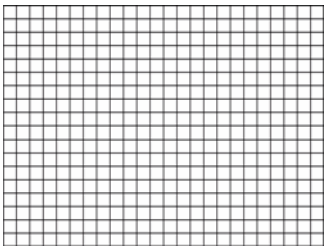
### Turning off the Power on/off ring tone

1. Repeat steps 1-2 above.
2. Press ▼ to highlight **Power on/off ring tone** and press ◄/► to select **Off**.

The only way to change Power on/off ring tone is setting On or Off here. Setting the sound mute or changing the sound level will not affect the Power on/off ring tone.

## Using the test pattern

The projector is capable of displaying the grid test pattern. It can be used to assist you with the adjustment of image size and focus, ensuring that the projected image is free from distortion.

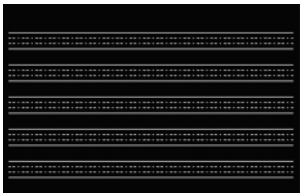
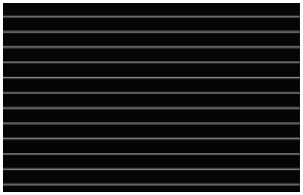


To display the test pattern, open the OSD menu and go to the **System Setup: Advanced > Test Pattern** and press ◄/► to select **On**.

# Using the teaching templates

The projector provides several preset patterns for various teaching purposes. To activate the pattern:

1. Open the OSD menu and go to the **Display > Teaching Template** and press ▲/▼ to select **Blackboard** or **Whiteboard**.
2. Press ◄/► to choose the pattern you need.
3. Press **MODE/ENTER** to activate the pattern.

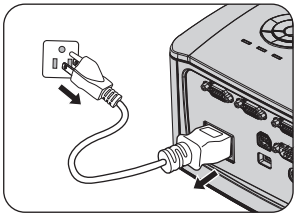
| Teaching Template | Whiteboard | Blackboard |
|---|---|---|
| Letter Formation | |  |
| Worksheet | |  |
| Coordinate Chart | | |

# Shutting down the projector

1. Press **POWER** or **OFF** and a confirmation message will appear prompting you.
   If you don't respond in a few seconds, the message will disappear.
2. Press **POWER** or **OFF** a second time. The **POWER indicator light** flashes orange, the projection lamp shuts down, and the fans will continue to run for approximately 90 seconds to cool down the projector.

⚠ To protect the lamp, the projector will not respond to any commands during the cooling process. To shorten the cooling time, you can also activate the Quick Cooling function. See "Quick Cooling" on page 60 for details.

3. Once the cooling process finishes, a "**Power Off Ring Tone**" will be heard. The **POWER indicator light** is a steady orange and fans stop. Disconnect the power cord from the power outlet.



☞
- To turn off the power ring tone, see "Turning off the Power on/off ring tone" on page 48 for details.
- If the projector is not properly shut down, to protect the lamp, when you attempt to re-start the projector, the fans will run for a few minutes to cool down. Press **POWER** or **ON** again to start the projector after the fans stop and the **POWER indicator light** turns orange.
- Lamp life results will vary depending on environmental conditions and usage.

# Menu operation

## Menu system

Please note that the on-screen display (OSD) menus vary according to the signal type selected.

| Main menu | Sub-menu | | Options |
|---|---|---|---|
| 1. Display | Wall color | | Off/Light Yellow/Pink/Light Green/Blue/Blackboard |
| | Aspect Ratio | | Auto/Real/4:3/16:9/16:10 |
| | Keystone | | |
| | Position | | |
| | Phase | | |
| | H.size | | |
| | Digital zoom | | PC:1.0X~2.0X; Video: 1.0X~1.8X |
| | 3D | 3D mode | Auto/Off/Frame sequential/ Frame packing/Top bottom/ Side by side |
| | | 3D Sync Invert | Disable/Invert |
| | | Save 3D Setting | 3D Settings 1/3D Settings 2/ 3D Settings 3 |
| | | Apply 3D Setting | 3D Settings 1/3D Settings 2/ 3D Settings 3 |
| | Teaching Template | Blackboard | Off/Letter Formation/ Worksheet/Coordinate Chart |
| | | Whiteboard | Off/Letter Formation/ Worksheet/Coordinate Chart |

| Main menu | Sub-menu | | Options |
|---|---|---|---|
| **2. Picture** | Picture Mode | | Dynamic/Presentation/ sRGB/Cinema/3D/User 1/ User 2 |
| | Reference Mode | | Dynamic/Presentation/ sRGB/Cinema/3D |
| | Brightness | | |
| | Contrast | | |
| | Color | | |
| | Tint | | |
| | Sharpness | | |
| | Brilliant Color | | On/Off |
| | Color Temperature | | Cool/Normal/Warm |
| | Color Temperature Fine Tuning | | R Gain/G Gain/B Gain/R Offset/ G Offset/B Offset |
| | 3D Color Management | Primary Color | R/G/B/C/M/Y |
| | | Hue | |
| | | Saturation | |
| | | Gain | |
| | Reset picture settings | | Current/All/Cancel |
| **3. Source** | Quick Auto Search | | On/Off |
| | Color Space Conversion | | Auto/RGB/YUV |

| Main menu | Sub-menu | | Options |
|---|---|---|---|
| 4. System Setup: Basic | Presentation Timer | Timer Period | 1~240 min |
| | | Timer Display | Always/1 min/2mins/3 mins/ Never |
| | | Timer Position | Top-Left/Bottom-Left/Top-Right/Bottom-Right |
| | | Timer Counting Direction | Count Down/Count up |
| | | Sound Reminder | On/Off |
| | | On/Off | Yes/No |
| | Language | | English / Français / Deutsch / Italiano / Español / Русский / 繁體中文 / 简体中文 / 日本語 / 한국어 / Svenska / Nederlands / Türkçe / Čeština / Português / ไทย / Polski / Magyar / Hrvatski / Română / Norsk / Dansk / Български / Suomi / Indonesian / Ελληνικά / العربية / हिन्दी |
| | Projector Installation | | Front Table/Rear Table/Rear Ceiling/Front Ceiling |
| | Menu Setting | Menu display Time | 5 sec/10 sec/20 sec/30 sec/ Always |
| | | Menu Position | Center/Top-Left/Top-Right/ Bottom-Right/Bottom-Left |
| | | Reminder Message | On/Off |
| | Operation Setting | Direct Power On | On/Off |
| | | Auto Power Off | Disable/3 mins/10 mins/15 mins/ 20 mins/25 mins/30 mins |
| | | Quick Cooling | On/Off |
| | | Instant Restart | On/Off |
| | | Blank Timer | Disable/5 mins/10 mins/15 mins/ 20 mins/25 mins/30 mins |
| | | Sleep Timer | Disable/30 mins/1 hr/2 hrs/ 3hrs/4hrs/8 hrs/12hrs |

| Main menu | Sub-menu | | Options |
|---|---|---|---|
| **4. System Setup: Basic** | Panel Key Lock | | On/Off |
| | Background Color | | BenQ / Black / Blue / Purple |
| | Splash Screen | | BenQ / Black / Blue |
| **5. System Setup: Advanced** | High Altitude Mode | | On/Off |
| | Audio Settings | Mute | On/Off |
| | | Volume | |
| | | Power on/off Ring | On/Off |
| | Lamp Settings | Lamp Mode | Normal/Economic/ SmartEco |
| | | Reset Lamp Timer | Reset / Cancel |
| | | Equivalent Lamp Hour | |
| | Security Setting | Change Password | |
| | | Change Security Settings | Power On Lock/Web Control Lock |
| | Baud Rate | | 2400/4800/9600/14400/ 19200/38400/57600/ 1152000 |
| | Test Pattern | | On/Off |
| | Closed Caption | Closed Caption Enable | On/Off |
| | | Caption Version | CC1 / CC2 / CC3 / CC4 |
| | Standby Settings | Network | Enable Network Standby Mode<br>Auto Disable Network Standby Mode |
| | | Monitor Out | On/Off |
| | | Audio Pass Through | Off/AUDIO IN/AUDIO LR/ HDMI |

| Main menu | Sub-menu | | Options |
|---|---|---|---|
| **5. System Setup: Advanced** | Network settings | Wired LAN | Status |
| | | | DHCP |
| | | | IP Address |
| | | | Subnet Mask |
| | | | Default Gateway |
| | | | DNS Server |
| | | | Apply |
| | | AMX Device Discovery | On/Off |
| | | Mac Address | |
| | Reset All Settings | | Reset / Cancel |
| **6. Information** | Current System Status | | • Source<br>• Picture Mode<br>• Resolution<br>• Lamp Mode<br>• 3D Format<br>• Color System<br>• Equivalent Lamp<br>• Firmware Version |

Note that the menu items are available when the projector detects at least one valid signal. If there is no equipment connected to the projector or no signal detected, limited menu items are accessible.

# Description of each menu

| | FUNCTION | DESCRIPTION |
|---|---|---|
| I. Display menu | **Wall color** | Corrects the projected picture's color when the projection surface is not white. See "Using Wall Color" on page 39 for details. |
| | **Aspect Ratio** | There are several options to set the image's aspect ratio depending on your input signal source. See "Selecting the aspect ratio" on page 36 for details. |
| | **Keystone** | Corrects any keystoning of the image manually. See "Correcting keystone" on page 30 for details. |
| | **Position** | Displays the position adjustment page. To move the projected image, use the directional arrow keys. The values shown on the lower position of the page change with every key press you made until they reach their maximum or minimum.<br>This function is only available when a PC signal (analog RGB) is selected. |
| | **Phase** | Adjusts the clock phase to reduce image distortion.<br>This function is only available when a PC signal (analog RGB) is selected. |
| | **H.size** | Adjusts the horizontal width of the image.<br>This function is only available when a PC signal (analog RGB) is selected. |
| | **Digital zoom** | Magnifies or reduces the projected image. See "Magnifying and searching for details" on page 36 for details. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 1. Display menu | **3D** | This projector features a 3D function which enables you to enjoy the 3D movies, videos, and sporting events in a more realistic way by presenting the depth of the images. You need to wear a pair of 3D glasses to view the 3D images.<br>**3D Mode**<br>The default setting is **Auto** and the projector automatically chooses an appropriate 3D format when detecting 3D contents. If the projector cannot recognize the 3D format, press ◄/► to choose a 3D mode.<br>☞ When the **3D** function is on:<br>• The brightness level of the projected image will decrease.<br>• The following settings cannot be adjusted: **Picture Mode**, **Reference Mode**.<br>• The **Keystone** can only be adjusted within limited degrees.<br>**3D Sync Invert**<br>When you discover the inversion of the image depth, enable this function to correct the problem.<br>**Save 3D Settings**<br>When you have successfully displayed the 3D contents after making the appropriate adjustments, you can enable this function and choose a set of 3D settings to memorize current 3D settings.<br>**Apply 3D Settings**<br>After the 3D settings are saved, you can decide if you would like to apply them by choosing a set of 3D settings that you have saved. Once applied, the projector will automatically play the incoming 3D contents if it matches the 3D settings saved.<br>☞ Only the set(s) of 3D settings with memorized data is available. |
| | **Teaching Template** | See "Using the teaching templates" on page 49 for details. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 2. Picture menu | **Picture Mode** | Pre-defined picture modes are provided so you can optimize your projector image set-up to suit your program type.<br>See "Selecting a picture mode" on page 39 for details. |
| | **Reference Mode** | Selects a picture mode that most suits your need for the image quality and further fine-tune the image based on the selections listed on the same page below.<br>See "Setting the User 1/User 2 mode" on page 40 for details. |
| | **Brightness** | Adjusts the brightness of the image.<br>See "Adjusting Brightness" on page 40 for details. |
| | **Contrast** | Adjusts the degree of difference between dark and light in the image. See "Adjusting Contrast" on page 40 for details. |
| | **Color** | Adjusts the color saturation level -- the amount of each color in a video image. See "Adjusting Color" on page 40 for details.<br>☞ The function is only available when **Component**, **Video** or **S-Video** with NTSC system is selected. |
| | **Tint** | Adjusts the red and green color tones of the image.<br>See "Adjusting Tint" on page 40 for details.<br>☞ The function is only available when **Video** or **S-Video** with NTSC system is selected. |
| | **Sharpness** | Adjusts the image to make it look sharper or softer.<br>See "Adjusting Sharpness" on page 40 for details.<br>☞ The function is only available when **Component**, **Video** or **S-Video** with NTSC system is selected. |
| | **Brilliant Color** | Adjusts white peaking while maintaining correct color presentation. See "Adjusting Brilliant Color" on page 41 for details. |
| | **Color Temperature** | See "Selecting a Color Temperature" on page 41 for details. |
| 2. Picture menu | **Color Temperature Fine Tuning** | See "Setting a preferred color temperature" on page 41 for details. |
| | **3D Color Management** | See "3D Color Management" on page 42 for details. |
| | **Reset picture settings** | See "Resetting current or all picture modes" on page 43 for details. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 3. Source menu | **Quick Auto Search** | See "Switching input signal" on page 35 for details. |
| | **Color Space Conversion** | See "Changing Color Space" on page 35 for details. |
| 4. System Setup: Basic menu | **Presentation Timer** | Reminds the presenter to finish the presentation within a certain time frame. See "Setting the presentation timer" on page 43 for details. |
| | **Language** | Sets the language for the On-Screen Display (OSD) menus.<br>See "Using the menus" on page 31 for details. |
| | **Projector Installation** | The projector can be installed on a ceiling or behind a screen, or with one or more mirrors.<br>See "Choosing a location" on page 20 for details. |
| | **Menu Setting** | **Menu display time**<br>Sets the length of time the OSD will remain active after your last key press. The range is from 5 to 30 seconds in 5-second increments.<br>**Menu Position**<br>Sets the On-Screen Display (OSD) menu position.<br>**Reminder Message**<br>Selecting **On** allows the projector to remind you to clean the filter. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 4. System Setup: Basic menu | **Operation Setting** | **Direct Power On**<br>Powers projector on automatically when the power cable is connected.<br><br>**Auto Power Off**<br>Allows the projector to turn off automatically if no input signal is detected after a set period of time.<br>See "Setting Auto Power Off" on page 67 for details.<br><br>**Quick Cooling**<br>Enables or disables the **Quick Cooling** function. Selecting **On** enables the function and the projector cooling time will be shortened from a normal 90 second duration to approximately 2 seconds.<br><br>☞ If you attempt to restart the projector right after the quick cooling process, it may not be turned on successfully and will rerun its cooling fans.<br><br>**Instant Restart**<br>Selecting **On** enables you to restart the projector immediately within 90 seconds after turning it off.<br><br>**Blank Timer**<br>Sets the image blank time when the Blank feature is activated, once elapsed the image will return to the screen. See "Hiding the image" on page 45 for details.<br><br>**Sleep Timer**<br>Sets the auto-shutdown timer. The timer can be set to a value between 30 minutes and 12 hours. |
| | **Panel Key Lock** | Disables or enables all panel key functions except ⏻ **POWER** on the projector and keys on the remote control. See "Locking control keys" on page 46 for details. |
| | **Background Color** | Selects background appearance when there is no signal. |
| | **Splash Screen** | Allows you to select which logo screen will appear during projector start-up |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 5. System Setup: Advanced menu | **High Altitude Mode** | A mode for operation in high altitude areas.<br>See "Operating in a high altitude environment" on page 46 for details. |
| | **Audio Settings** | See "Adjusting the sound" on page 47 for details. |
| | **Lamp Settings** | **Lamp Mode**<br>See "Setting Lamp mode as Economic or SmartEco" on page 66 for details.<br>**Reset lamp timer**<br>See "Resetting the lamp timer" on page 71 for details.<br>**Equivalent Lamp Hour**<br>See "Getting to know the lamp hour" on page 66 for details on how the total lamp hour is calculated. |
| | **Security Setting** | **Change password**<br>You will be asked to enter the current password before changing to a new one.<br>See "Utilizing the password function" on page 32 for details.<br>**Change Security Settings**<br>**Power On Lock**<br>When **Power On Lock** is activated, you will be asked to enter the current password before powering on the projector.<br>If you enter incorrect password 5 times in succession, the projector will automatically shut down in a short time.<br>**Web Control Lock**<br>See BenQ Network Projector Operation Guide for details. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 5. System Setup: Advanced menu | **Baud Rate** | Selects a baud rate that is identical with your computer's so that you can connect the projector using a suitable RS-232 cable and update or download the projector's firmware. This function is intended for qualified service personnel. |
| | **Test Pattern** | Selecting **On** enables the function and the projector displays the grid test pattern. It helps you adjust the image size and focus and check that the projected image is free from distortion. |
| | **Closed Caption** | **Closed Caption Enable**<br>Activates the function by selecting On when the selected input signal carries closed captions.<br>• Captions: An on-screen display of the dialogue, narration, and sound effects of TV programs and videos that are closed captioned (usually marked as "CC" in TV listings).<br>**Caption Version**<br>Selects a preferred closed captioning mode. To view captions, select CC1, CC2, CC3, or CC4 (CC1 displays captions in the primary language in your area). |

| FUNCTION | DESCRIPTION |
| --- | --- |
| 5. System Setup: Advanced menu<br>**Standby Settings** | **Network**<br>**Enable Network Standby Mode**<br>To enable or disable the network standby mode after the projector is automatically or manually turned off.<br>• On: The projector will maintain at network standby mode with less than 6W power consumption.<br>• Off: The projector will maintain at normal standby mode with less than 0.5W power consumption.<br>**Auto Disable Network standby mode**<br>To enable or disable the auto switch from network standby mode to non-network standby mode after a period of time. (This setting should be grayed out when Enable network standby mode is off.)<br>• Never:To disable the auto switch function. The projector will maintain at network standby mode with less than 6W power consumption.<br>• 20 min / 1 hr / 3 hr / 6 hr: The projector will be switched to non-network standby mode after 20 minutes / 1 hour / 3 hours / 6 hours<br>**Monitor Out**<br>Selecting On enables the function. The projector can output a VGA signal when it is in standby mode and the COMPUTER 1 jack is correctly connected to devices. See "Connection" on page 25 for how to make the connection.<br>**Audio Pass Through**<br>The projector can play sound when it is in standby mode and the corresponding jacks are correctly connected to devices. Press ◄/► to choose the source that you wish to use. See "Connection" on page 25 for how to make the connection.<br>☞ Enabling this function slightly increases the standby power consumption. |

| | FUNCTION | DESCRIPTION |
|---|---|---|
| 5. System Setup: Advanced menu | **Network settings** | **Wired LAN**<br>**AMX Device Discovery**<br>When **AMX Device Discovery** is **On**, the projector can be detected by AMX controller.<br>**MAC Address**<br>Displays the mac address for this projector. |
| | **Reset All Settings** | Returns all settings to the factory preset values.<br>☞ The following settings will still remain: **Position**, **Phase**, **H. Size**, **Projector Installation**, **Language**, **High Altitude Mode**, **Security Settings**, **Baud Rate**. |
| 6. Information menu | **Current System Status** | **Source**<br>Shows the current signal source.<br>**Picture Mode**<br>Shows the selected mode in the **Picture** menu.<br>**Resolution**<br>Shows the native resolution of the input signal.<br>**Lamp Mode**<br>Shows the current lamp mode.<br>**3D Format**<br>Shows the current 3D mode.<br>**Color System**<br>Shows input system format, NTSC, PAL, SECAM, YUV or RGB.<br>**Equivalent Lamp Hour**<br>Displays the number of hours the lamp has been used.<br>**Firmware Version**<br>Displays the firmware version of the projector. |

☞ The **Information** menu shows you the current operating status of the projector.

# Maintenance

## Care of the projector

Your projector needs little maintenance. The only thing you need to do on a regular basis is to keep the lens clean.

Never remove any parts of the projector except the lamp. Contact your dealer if other parts need replacing.

### Cleaning the Projector Mirror

Remove the dust with a "Bellows/Lens Blower" readily available from camera shops to prevent scratching the mirror with subsequently wiped.

### Cleaning the lens

Clean the lens whenever you notice dirt or dust on the surface.

- Use a canister of compressed air to remove dust.
- If there is dirt or smears, use lens-cleaning paper or moisten a soft cloth with lens cleaner and gently wipe the lens surface.

⚠ Never use any type of abrasive pad, alkaline/acid cleaner, scouring powder, or volatile solvent, such as alcohol, benzene, thinner or insecticide. Using such materials or maintaining prolonged contact with rubber or vinyl materials may result in damage to the projector surface and cabinet material.

### Cleaning the projector case

Before you clean the case, turn the projector off using the proper shutdown procedure as described in "Shutting down the projector" on page 50 and unplug the power cord.

- To remove dirt or dust, wipe the case with a soft, lint-free cloth.
- To remove stubborn dirt or stains, moisten a soft cloth with water and a neutral pH detergent. Then wipe the case.

⚠ Never use wax, alcohol, benzene, thinner or other chemical detergents. These can damage the case.

### Storing the projector

If you need to store the projector for an extended time, please follow the instructions below:

- Make sure the temperature and humidity of the storage area are within the recommended range for the projector. Please refer to "Specifications" on page 76 or consult your dealer about the range.
- Retract the adjuster feet.
- Remove the battery from the remote control.
- Pack the projector in its original packing or equivalent.

## Transporting the projector

It is recommended that you ship the projector with its original packing or equivalent.
When you carry the projector yourself, please use the original box or a suitable soft carry case.

# Lamp information

## Getting to know the lamp hour

When the projector is in operation, the duration (in hours) of lamp usage is automatically calculated by the built-in timer. The method of calculating the equivalent lamp hour is as follows:

☞ See "Setting Lamp mode as Economic or SmartEco" below for more information on **Economic** mode.

To obtain the lamp hour information:

1. Press **MENU/EXIT** and then press ◄/► until the **SYSTEM SETUP: Advanced** menu is highlighted.
2. Press ▼ to highlight **Lamp Settings** and press **MODE/ENTER**. The **Lamp Settings** page displays.
3. You will see the **Equivalent lamp hour** information displaying on the menu.
4. To leave the menu, press **MENU/EXIT**.

You can also get the lamp hour information on the **INFORMATION** menu.

## Extending lamp life

The projection lamp is a consumable item. To keep the lamp life as long as possible, you can do the following settings via the OSD menu.

### Setting Lamp mode as Economic or SmartEco

Using **Economic** mode reduces system noise and power consumption by 15%. Using **SmartEco** mode reduces system noise and lamp power consumption by up to 30%. If the **Economic** or **SmartEco** mode is selected, the light output will be reduced and result in darker projected pictures.

Setting the projector in **Economic** or **SmartEco** mode also extends the lamp operation life. To set **Economic** or **SmartEco** mode, go into the **SYSTEM SETUP: Advanced > Lamp Settings > Lamp mode** menu and press ◄/► until your desired mode is selected.

| Lamp mode | Description |
|---|---|
| **Normal** | 100% lamp brightness |
| **Economic** | Saves 15% lamp power consumption |

| Lamp mode | Description |
|---|---|
| **SmartEco** | Saves up to 30% lamp power consumption depending on the content brightness level. |

☞ There is a time delay between lamp mode instances.

### Setting Auto Power Off

This function allows the projector to turn off automatically if no input source is detected after a set period of time to prevent unnecessary waste of lamp life.

To set **Auto Power Off**, go into the **SYSTEM SETUP: Basic > Auto Power Off** menu and press ◄/►. The time period can be set from 5 to 30 minutes in 5-minute increments. If the preset time lengths are not suitable for your presentation, select **Disable**. The projector will not automatically shut down in a certain time period.

## Timing of replacing the lamp

When the **Lamp indicator** lights up red or a message appears suggesting it is time to replace the lamp, please install a new lamp or consult your dealer. An old lamp may cause a malfunction in the projector and in some instances the lamp may explode.

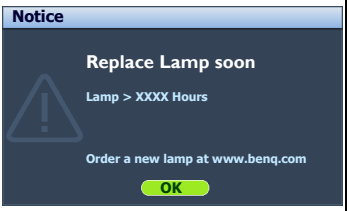
Total (equivalent) lamp hour = 1.75*(hours used in Normal mode) + 1.40*(hours used in Economic mode) + 1.00*(hours)

Go to http://www.benq.com for a replacement lamp.

⚠ The Lamp indicator light and Temperature warning light will light up if the lamp becomes too hot. Turn the projector off and let the projector cool for 45 minutes. If the lamp or Temp indicator still lights up after turning the power back on, please contact your dealer. See "Indicators" on page 73 for details.

The following lamp warning displays will remind you to change the lamp.

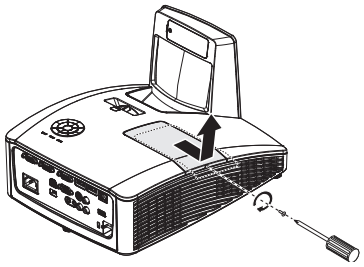
☞ The warning messages below are for reference only. Please follow the actual on-screen instructions to prepare and replace the lamp.

| Status | Message |
|---|---|
| Install a new lamp for optimal performance. If the projector is normally run with **Economic** selected (See "Setting Lamp mode as Economic or SmartEco" on page 66), you may continue to operate the projector until the next lamp warning appears.<br><br>Press **MODE/ENTER** to dismiss the message. | |
| It is strongly recommended that you replace the lamp at this age. The lamp is a consumable item. The lamp brightness diminishes with use. This is normal lamp behavior. You can replace the lamp whenever you notice that the brightness level has significantly diminished.<br><br>Press **MODE/ENTER** to dismiss the message. |  <br> |
| The lamp MUST be replaced before the projector will operate normally.<br><br>Press **MODE/ENTER** to dismiss the message. | |

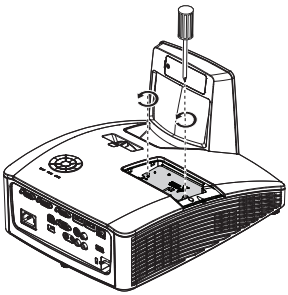
# Replacing the lamp

- If lamp replacement is performed while the projector is suspended upside-down from the ceiling, make sure that no one is underneath the lamp socket to avoid any possible injury or damage to the human eyes caused by fractured lamp.
- To reduce the risk of electrical shock, always turn the projector off and disconnect the power cord before changing the lamp.
- To reduce the risk of severe burns, allow the projector to cool for at least 45 minutes before replacing the lamp.
- To reduce the risk of injuries to fingers and damage to internal components, use caution when removing lamp glass that has shattered into sharp pieces.
- To reduce the risk of injuries to fingers and/or compromising image quality by touching the lens, do not touch the empty lamp compartment when the lamp is removed.
- This lamp contains mercury. Consult your local hazardous waste regulations to dispose of this lamp in a proper manner.
- To assure optimal performance from the projector, it is recommended that you purchase a BenQ projector lamp for lamp replacement.
- Ensure good ventilation when handling broken lamps. We recommend that you use respirators, safety glasses, goggles or face shield and wear protective clothing such as gloves.

1. Turn the power off and disconnect the projector from the wall socket. If the lamp is hot, avoid burns by waiting for approximately 45 minutes until the lamp has cooled.
2. Loosen the screw from the right side.
3. Remove the lamp compartment cover as shown.

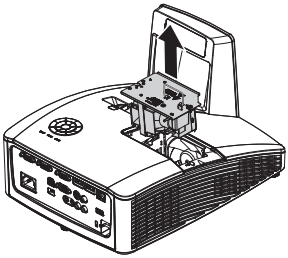


4. Loosen the two captive screws that secure the lamp.



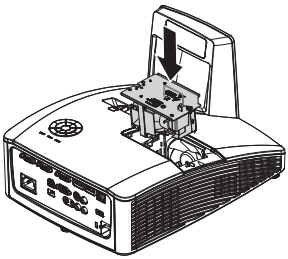
⚠
- Do not turn the power on with the lamp cover removed.
- Do not insert your fingers between the lamp and the projector. The sharp edges inside the projector may cause injuries.

5. Lift the handle so that it stands up. Use the handle to slowly pull the lamp out of the projector.



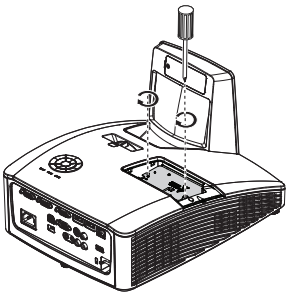
⚠
- Pulling it too quickly may cause the lamp to break and scatter broken glass in the projector.
- Do not place the lamp in locations where water might splash on it, children can reach it, or near flammable materials.
- Do not insert your hands into the projector after the lamp is removed. If you touch the optical components inside, it could cause color unevenness and distortion of the projected images.

6. Insert the new lamp into the lamp compartment and make sure it fits in the projector.



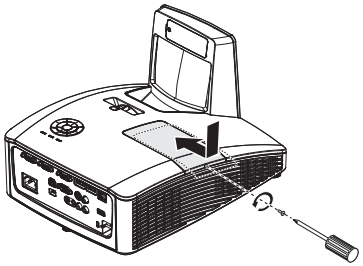
⚠
- Ensure the connectors are aligned.
- If you experience resistance, lift the lamp and start again.

7. Tighten the screws that secure the lamp.
8. Ensure the handle is fully laid flat and locked in place.



⚠
- Loose screw may cause a bad connection, which could result in malfunction.
- Do not over tighten the screw.

9. Replace the lamp compartment cover on the projector and tighten the screw.



10. Restart the projector.

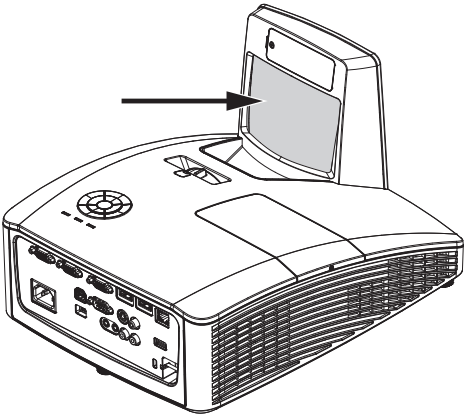
⚠ Do not turn the power on with the lamp cover removed.

**Resetting the lamp timer**

11. After the startup logo, open the On-Screen Display (OSD) menu. Go to the **SYSTEM SETUP: Advanced > Lamp Settings** menu. Press **MODE/ENTER**. The **Lamp Settings** page displays. Highlight **Reset lamp timer**. A warning message displays asking if you want to reset the lamp timer. Highlight **Reset** and press **MODE/ENTER**. The lamp time will be reset to '0'.

⚠ Do not reset if the lamp is not new or replaced as this could cause damage.

# Cleaning the projector mirror



Remove dust with a “Bellows/Lens Blower” readily available from Camera shops to prevent scratching the mirror when subsequently wiped.

⚠
- Always turn the projector off and allow to cool for at least 30 minutesprior to cleaning.
- Never touch the projector mirror or Lens directly by hand.

# Indicators

| Light | | | Status & Description | |
|---|---|---|---|---|
| **Power** | **Temp** | **Lamp** | | |
| **Power events** | | | | |
| **Orange** | **Off** | **Off** | Stand-by mode | |
| **Green Flashing** | **Off** | **Off** | Powering up | |
| **Green** | **Off** | **Off** | Normal operation | |
| **Orange Flashing** | **Off** | **Off** | Projector is cooling. | |
| **Lamp events** | | | | |
| **Off** | **Off** | **Orange Flashing** | The lamp ignition is not lit up. | |
| **Off** | **Off** | **Red** | 1. The projector needs 90 seconds to cool down.<br>**Or**<br>2. Please contact your dealer for assistance. | |
| **Thermal events** | | | | |
| **Red** | **Red** | **Red** | The fans are not working. | The projector has shutdown automatically. If you try to re-start the projector, it will shutdown again. Please contact your dealer for assistance. |
| **Red** | **Red** | **Off** | | |
| **Red** | **Red** | **Orange** | | |
| **Red** | **Red** | **Green** | | |
| **Green** | **Orange** | **Off** | The internal temperature is too high.<br>• The intake ventilation or the exhaust ventilation is blocked.<br>• The projector may be in a poorly ventilated location.<br>• The ambient temperature may be too high. | |
| **Green** | **Orange** | **Red** | | |
| **Green** | **Orange** | **Orange** | | |
| **Green** | **Orange** | **Green** | | |
| **Green** | **Red** | **Red** | | |
| **System events** | | | | |
| **Green** | **Off** | **Red** | The projector has shutdown automatically. If you try to re-start the projector, it will shutdown again. Please contact your dealer for assistance. | |
| **Red Flashing** | **Off** | **Off** | | |
| **Red** | **Off** | **Red** | | |
| **Off** | **Green** | **Red** | Lamp door is open. Please check if the lamp door is open or not closed properly. | |

# Troubleshooting

### ⓘ The projector does not turn on.

| Cause | Remedy |
|---|---|
| There is no power from the power cable. | Plug the power cord into the AC inlet on the projector, and plug the power cord into the power outlet. If the power outlet has a switch, make sure that it is switched on. |
| Attempting to turn the projector on again during the cooling process. | Wait until the cooling down process has completed. |

### ⓘ No picture

| Cause | Remedy |
|---|---|
| The video source is not turned on or connected correctly. | Turn the video source on and check that the signal cable is connected correctly. |
| The projector is not correctly connected to the input signal device. | Check the connection. |
| The input signal has not been correctly selected. | Select the correct input signal with the **SOURCE** key on the projector or remote control. |

### ⓘ Blurred image

| Cause | Remedy |
|---|---|
| The projection lens is not correctly focused. | Adjust the focus of the lens using the focus ring. |
| The projector and the screen are not aligned properly. | Adjust the projection angle and direction as well as the height of the unit if necessary. |

### Remote control does not work

| Cause | Remedy |
|---|---|
| The battery is out of power. | Replace the battery with new one. |
| There is an obstacle between the remote control and the projector. | Remove the obstacle. |
| You are too far away from the projector. | Stand within 7 meters (23 feet) of the projector. |

### The password is incorrect

| Cause | Remedy |
|---|---|
| You do not remember the password. | Please see "Entering the password recall procedure" on page 33 for details. |

# Specifications

## Projector specifications

☞ All specifications are subject to change without notice.

**Optical**

Resolution
- MX852UST+
  - 1024 x 768 XGA
- MW853UST+
  - 1280 x 800 WXGA

Display system
- Single-chip DLP™ system

Lens F/Number
- F = 2.5, f = 5.1 mm

Clear focus range
- 0.28m~0.45m (from IO to screen)

Lamp
- 230W lamp

**Electrical**

Power supply
- AC100-240V, 3.5A
- 50-60 Hz (Automatic)

Power consumption
- 320W (Max); < 0.5W (Standby)

**Mechanical**

Weight
- 11 lbs (5 Kg)

**Output terminals**

Speaker
- 10 watt x 2

Audio signal output
- PC audio jack x 1

Monitor Out
- D-Sub 15-pin (female) x1

**Control**

USB
- Type-B mini USB
- (Optional for PointWrite kit)
- Type-A power supply 5V /1A
- (Optional for PointWrite Touch module)

RS-232 serial control
- 9 pin x 1

IR receiver x 1

LAN control
- RJ45 x 1

**Input terminals**

Computer input
- RGB input
  - D-Sub 15-pin (female) x 2

Video signal input
- S-VIDEO
  - Mini DIN 4-pin port x 1
- VIDEO
  - RCA jack x 1
- SD/HDTV signal input
  - Analog-Component RCA jack x 3 (through RGB input)
  - Digital - HDMI x 2

Audio signal input
- Audio in
  - PC audio jack x 1
  - RCA audio jack (L/R) x 1

**Environmental Requirements**

Operating temperature
- 0°C–40°C at sea level

Operating relative humidity
- 10%–90% (without condensation)

Operating altitude
- 0–1499 m at 0°C–35°C
- 1500–3000 m at 0°C–30°C
- (with High Altitude Mode on)

# Timing chart

## Supported timing for PC input

| Resolution | Format | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 720 x 400 | 720 x 400_70 | 70.087 | 31.469 | 28.3221 |
| 640 x 480 | VGA_60* | 59.94 | 31.469 | 25.175 |
| | VGA_72 | 72.809 | 37.861 | 31.5 |
| | VGA_75 | 75 | 37.5 | 31.5 |
| | VGA_85 | 85.008 | 43.269 | 36 |
| 800 x 600 | SVGA_60* | 60.317 | 37.879 | 40 |
| | SVGA_72 | 72.188 | 48.077 | 50 |
| | SVGA_75 | 75 | 46.875 | 49.5 |
| | SVGA_85 | 85.061 | 53.674 | 56.25 |
| | SVGA_120** (Reduce Blanking) | 119.854 | 77.425 | 83 |
| 1024 x 768 | XGA_60* | 60.004 | 48.363 | 65 |
| | XGA_70 | 70.069 | 56.476 | 75 |
| | XGA_75 | 75.029 | 60.023 | 78.75 |
| | XGA_85 | 84.997 | 68.667 | 94.5 |
| | XGA_120** (Reduce Blanking) | 119.989 | 97.551 | 115.5 |
| 1152 x 864 | 1152 x 864_75 | 75 | 67.5 | 108 |
| 1024 x 576 | BenQ Notebook Timing | 60 | 35.82 | 46.966 |
| 1024 x 600 | BenQ Notebook Timing | 64.995 | 41.467 | 51.419 |
| 1280 x 720 | 1280 x 720_60* | 60 | 45 | 74.25 |
| 1280 x 768 | 1280 x 768_60* | 59.87 | 47.776 | 79.5 |
| 1280 x 800 | WXGA_60* | 59.81 | 49.702 | 83.5 |
| | WXGA_75 | 74.934 | 62.795 | 106.5 |
| | WXGA_85 | 84.88 | 71.554 | 122.5 |
| | WXGA_120** (Reduce Blanking) | 119.909 | 101.563 | 146.25 |

| Resolution | Format | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 1280 x 1024 | SXGA_60*** | 60.02 | 63.981 | 108 |
| | SXGA_75 | 75.025 | 79.976 | 135 |
| | SXGA_85 | 85.024 | 91.146 | 157.5 |
| 1280 x 960 | 1280 x 960_60*** | 60 | 60 | 108 |
| | 1280 x 960_85 | 85.002 | 85.938 | 148.5 |
| 1360 x 768 | 1360 x 768_60*** | 60.015 | 47.712 | 85.5 |
| 1440 x 900 | WXGA+_60*** | 59.887 | 55.935 | 106.5 |
| 1400 x 1050 | SXGA+_60*** | 59.978 | 65.317 | 121.75 |
| 1600 x 1200 | UXGA*** | 60 | 75 | 162 |
| 1680 x 1050 | 1680 x 1050_60*** | 59.954 | 65.29 | 146.25 |
| 640 x 480 @67Hz | MAC13 | 66.667 | 35 | 30.24 |
| 832 x 624 @75Hz | MAC16 | 74.546 | 49.722 | 57.28 |
| 1024 x 768 @75Hz | MAC19 | 74.93 | 60.241 | 80 |
| 1152 x 870 @75Hz | MAC21 | 75.06 | 68.68 | 100 |

* Supported timing for 3D signal with Frame Sequential, Top-Bottom and Side-by-Side format.

** Supported timing for 3D signal with Frame Sequential format.

*** Supported timing for 3D signal with Top-Bottom and Side-by-Side format.

- The timings showing above may not be supported due to EDID file and VGA graphic card limitations. It is possible that some timings cannot be chosen.

## Support timing for Component - YPbPr input

| Format | Resolution | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 480i* | 720 x 480 | 59.94 | 15.73 | 13.5 |
| 480p* | 720 x 480 | 59.94 | 31.47 | 27 |
| 576i | 720 x 576 | 50 | 15.63 | 13.5 |
| 576p | 720 x 576 | 50 | 31.25 | 27 |
| 720/50p | 1280 x 720 | 50 | 37.5 | 74.25 |
| 720/60p* | 1280 x 720 | 60 | 45 | 74.25 |
| 1080/50i | 1920 x 1080 | 50 | 28.13 | 74.25 |
| 1080/60i | 1920 x 1080 | 60 | 33.75 | 74.25 |
| 1080/24p | 1920 x 1080 | 24 | 27 | 74.25 |
| 1080/25p | 1920 x 1080 | 25 | 28.13 | 74.25 |
| 1080/30p | 1920 x 1080 | 30 | 33.75 | 74.25 |
| 1080/50p | 1920 x 1080 | 50 | 56.25 | 148.5 |
| 1080/60p | 1920 x 1080 | 60 | 67.5 | 148.5 |

* Supported timing for 3D signal with Frame Sequential format.

## Support timing for Video input

| Format | Resolution | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| NTSC* | - | 60 | 15.73 | 3.58 |
| PAL | - | 50 | 15.63 | 4.43 |
| SECAM | - | 50 | 15.63 | 4.25 or 4.41 |
| PAL-M | - | 60 | 15.73 | 3.58 |
| PAL-N | - | 50 | 15.63 | 3.58 |
| PAL-60 | - | 60 | 15.73 | 4.43 |
| NTSC4.43 | - | 60 | 15.73 | 4.43 |

* Supported timing for 3D signal with Frame Sequential format.

# Support timing for HDMI (HDCP) input

| Resolution | Format | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 640 x 480 | VGA_60* | 59.94 | 31.469 | 25.175 |
| | VGA_72 | 72.809 | 37.861 | 31.5 |
| | VGA_75 | 75 | 37.5 | 31.5 |
| | VGA_85 | 85.008 | 43.269 | 36 |
| 720 x 400 | 720 x 400_70 | 70.087 | 31.469 | 28.3221 |
| 800 x 600 | SVGA_60* | 60.317 | 37.879 | 40 |
| | SVGA_72 | 72.188 | 48.077 | 50 |
| | SVGA_75 | 75 | 46.875 | 49.5 |
| | SVGA_85 | 85.061 | 53.674 | 56.25 |
| | SVGA_120** (Reduce Blanking) | 119.854 | 77.425 | 83 |
| 1024 x 768 | XGA_60* | 60.004 | 48.363 | 65 |
| | XGA_70 | 70.069 | 56.476 | 75 |
| | XGA_75 | 75.029 | 60.023 | 78.75 |
| | XGA_85 | 84.997 | 68.667 | 94.5 |
| | XGA_120** (Reduce Blanking) | 119.989 | 97.551 | 115.5 |
| 1152 x 864 | 1152 x 864_75 | 75 | 67.5 | 108 |
| 1024 x 576 | BenQ Notebook Timing | 60 | 35.82 | 46.996 |
| 1024 x 600 | BenQ Notebook Timing | 64.995 | 41.467 | 51.419 |
| 1280 x 720 | 1280 x 720_60* | 60 | 45 | 74.25 |
| 1280 x 768 | 1280 x 768_60* | 59.87 | 47.776 | 79.5 |
| 1280 x 800 | WXGA_60* | 59.81 | 49.702 | 83.5 |
| | WXGA_75 | 74.934 | 62.795 | 106.5 |
| | WXGA_85 | 84.88 | 71.554 | 122.5 |
| | WXGA_120** (Reduce Blanking) | 119.909 | 101.563 | 146.25 |

| Resolution | Format | Refresh rate (Hz) | H- frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 1280 x 1024 | SXGA_60*** | 60.02 | 63.981 | 108 |
| | SXGA_75 | 75.025 | 79.976 | 135 |
| | SXGA_85 | 85.024 | 91.146 | 157.5 |
| 1280 x 960 | 1280 x 960_60*** | 60 | 60 | 108 |
| | 1280 x 960_85 | 85.002 | 85.938 | 148.5 |
| 1360 x 768 | 1360 x 768_60*** | 60.015 | 47.712 | 85.5 |
| 1440 x 900 | WXGA+_60*** | 59.887 | 55.935 | 106.5 |
| 1400 x 1050 | SXGA+_60*** | 59.978 | 65.317 | 121.75 |
| 1600 x 1200 | UXGA*** | 60 | 75 | 162 |
| 1680 x 1050 | 1680 x 1050_60*** | 59.954 | 65.29 | 146.25 |
| 640 x 480 @67Hz | MAC13 | 66.667 | 35 | 30.24 |
| 832 x 624 @75Hz | MAC16 | 74.546 | 49.722 | 57.28 |
| 1024 x 768@75Hz | MAC19 | 75.02 | 60.241 | 80 |
| 1152 x 870@75Hz | MAC21 | 75.06 | 68.68 | 100 |

* Supported timing for 3D signal with Frame Sequential, Top-Bottom and Side-by-Side format.

** Supported timing for 3D signal with Frame Sequential format.

*** Supported timing for 3D signal with Top-Bottom and Side-by-Side format.

- The timings showing above may not be supported due to EDID file and VGA graphic card limitations. It is possible that some timings cannot be chosen.

## Supporting timing for HDMI Video input

| Format | Resolution | Refresh rate (Hz) | H-frequency (kHz) | Pixel Frequency (MHz) |
|---|---|---|---|---|
| 480i*** | 720 (1440) x 480 | 59.94 | 15.73 | 27 |
| 480p*** | 720 x 480 | 59.94 | 31.47 | 27 |
| 576i | 720 (1440) x 576 | 50 | 15.63 | 27 |
| 576p | 720 x 576 | 50 | 31.25 | 27 |
| 720/50p** | 1280 x 720 | 50 | 37.5 | 74.25 |
| 720/60p* | 1280 x 720 | 60 | 45 | 74.25 |
| 1080/24p** | 1920 x 1080 | 24 | 27 | 74.25 |
| 1080/25p | 1920 x 1080 | 25 | 28.13 | 74.25 |
| 1080/30p | 1920 x 1080 | 30 | 33.75 | 74.25 |
| 1080/50i**** | 1920 x 1080 | 50 | 28.13 | 74.25 |
| 1080/60i**** | 1920 x 1080 | 60 | 33.75 | 74.25 |
| 1080/50p***** | 1920 x 1080 | 50 | 56.25 | 148.5 |
| 1080/60p***** | 1920 x 1080 | 60 | 67.5 | 148.5 |

* Supported timing for 3D signal with Frame Sequential, Frame Packing, Top-Bottom and Side-by-Side format.

** Supported timing for 3D signal with Frame Packing, Top-Bottom and Side-by-Side format.

*** Supported timing for 3D signal with Frame Sequential format.

**** Supported timing for 3D signal with Side-by-Side format.

***** Supported timing for 3D signal with Top-Bottom and Side-by-Side format.

# Warranty and Copyright information

## Limited warranty

BenQ warrants this product against any defects in material and workmanship, under normal usage and storage.

Proof of purchase date will be required with any warranty claim. In the event this product is found to be defective within the warranty period, BenQ's only obligation and your exclusive remedy shall be replacement of any defective parts (labor included). To obtain warranty service, immediately notify the dealer from which you purchased the product of any defects.

Important: The above warranty shall be void if the customer fails to operate the product in accordance with BenQ's written instructions, especially the ambient humidity must be in-between 10% and 90%, temperature in-between 0°C and 35°C, altitude lower than 4920 feet, and avoiding to operate the projector in a dusty environment. This warranty gives you specific legal rights, and you may have other rights which vary from country to country.

For other information, please visit www.BenQ.com.

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